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ABSTRACT

A study identified alternative models of short-term upgrading and updating training for employed workers in business and industry. In phase 1, a literature review provided the basis for a nine-cell matrix that conceptualized alternative models of industry-based training as a function of the skill level the training addressed and the degree of program development activity. Phase 2 was a series of investigations to ascertain the extent to which these conceptualized alternative models were used by business and industry. The research procedures were a telephone survey of Minnesota Technical Institute extension directors, focus group interviews with five selected extension administrators, a survey of businesses in Minnesota, and formation of an advisory committee. Findings indicated that Minnesota's technical institutes conducted a high degree of industry-based training activity. Most of this training was targeted toward the manufacturing and health care industries. The study found evidence of the use of each conceptualized industry-based model. No "one best model" emerged; each model seemed to meet different needs. Barriers to the delivery of industry-based training as perceived by industry included availability of needed courses, program accessibility, and lack of confidence in instructor skills and abilities. (Instruments and 43 references are appended.) (YLB)

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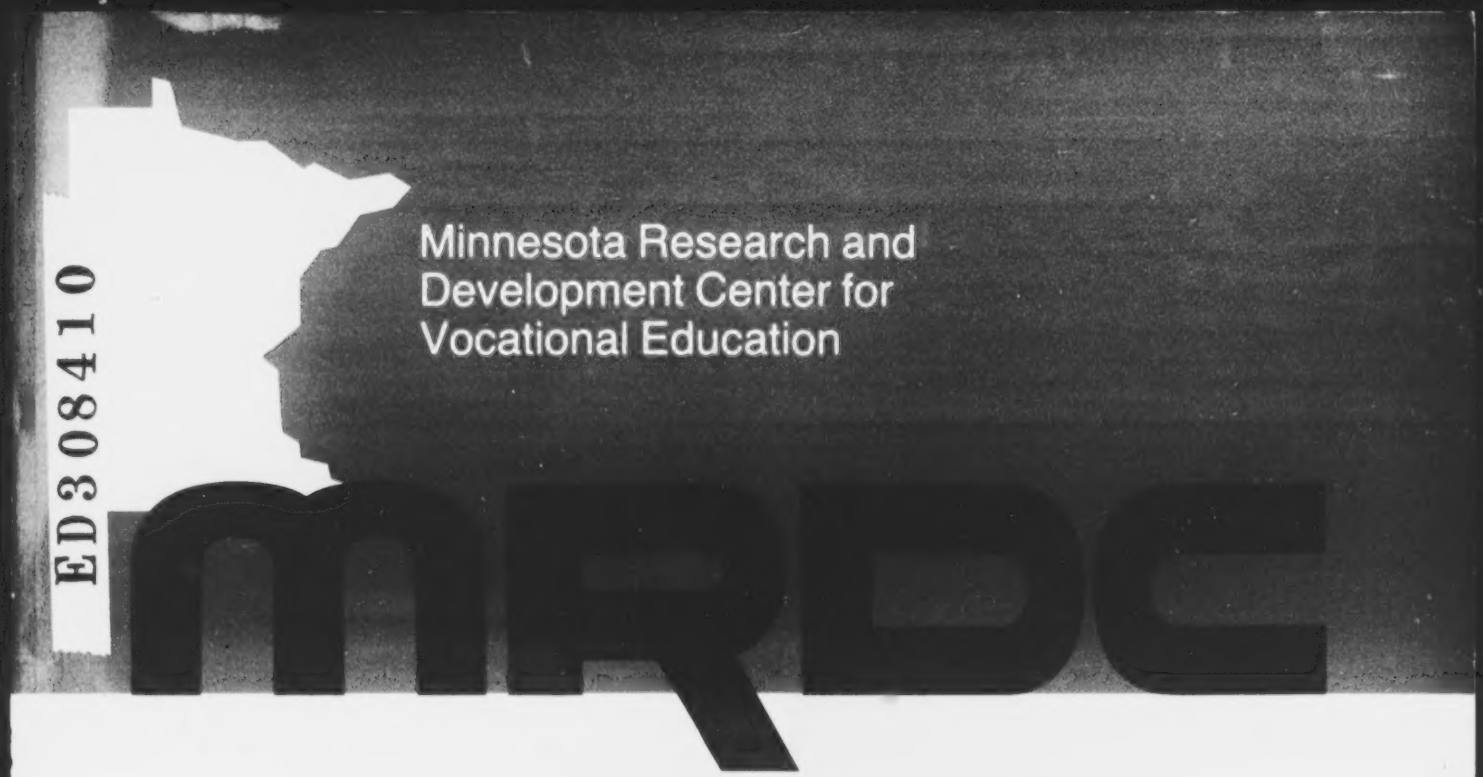

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Industry Based Training in Minnesota

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July 1989

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CHAPTER 1

CONTEXT FOR THE STUDY

The purpose of this research was to identify alternative models of industry based training that might be of use to schools within the Minnesota Technical Institute system. More specifically, the study sought to (a) describe the current state of industry based training in Minnesota, and (b) determine the relationship between administrative and planning factors and industry use of alternative models. Understanding these relationships will be of benefit to Minnesota Technical Institute extension administrators as they design and deliver training for employed workers.

The study was conducted in two phases. During the first phase a literature search was conducted to identify possible models of industry based training. Telephone interviews were also used in this phase to identify planning and administrative factors associated with industry based training programs. A paper reporting the results of this phase was published in the spring of 1988 (Stone & Manion, 1988).

The second phase of the study sought to further define and explore the models and planning and administrative factors identified in phase one. The following paper reports the findings of this phase. Conclusions presented in Chapter 5 reflect findings from both phases of the study.

Background to the Study

American business and industry spends enormous sums on the training and retraining of employed workers. Kopecek (1984) estimated that this sum ranged from $30 billion to $100 billion each year depending on what was included in the estimate. The bulk of this training has traditionally been offered in-house by corporate training and human resource development departments. In recent decades, many firms have turned to community colleges, universities, and vocational schools as alternative sources for employee training (Zemke, 1985). This trend is expected to continue as competitive, economic, and technological factors create a greater need to update and upgrade employee skills (Luther, 1984; Stone & Manion, 1988).

In recent years, vocational and technical education programs have moved rapidly toward extending non-traditional training

opportunities to business and industry. In many cases, the need to fill classes drives this movement as programs lose traditional students because of changing demographics. In other cases, economic development goals motivate such activities. In still other cases, a sense of mission propels vocational and technical educators toward providing training for industry. The following pages summarize these factors from the perspectives of technical institutes, the business community, and state government.

Technical Institute Perspective

From the perspective of a technical institute (TI) system, two specific conditions exist which provide opportunities to furnish or expand industry based training. First, the system has the expertise to provide needed training. Second, as traditional student populations continue to decline, staff and facilities are becoming more readily available to provide training (Guilinger, 1987).

The opportunities created by these conditions suggest potential benefits for technical institutes. The first benefit is greater utilization of staff and facilities. A tangential benefit which flows from this, is the increased contact instructional staff will have with business and industry. This contact will benefit both the instructors and the students enrolled in the traditional programs by enhancing and updating instructors' knowledge. The second benefit is establishing or strengthening the relationship between technical institutes and business and industry. This relationship strengthens the TI position within the community and can contribute to increased worker productivity and local economic development (Sorensen, 1986).

Business and Industry Perspective

For businesses using training provided by technical institutes, benefits may vary depending upon the size of the firm. Many smaller firms, because they do not have internal training programs or personnel, have used technical institutes as surrogate training departments. Lloyd (1987) suggested that these firms may require TI assistance more than larger, more self-reliant firms. Larger organizations, and organizations with internal training functions, often use TIs to cushion training budgets and offer specialized types of training (Geber, 1987).

Business and industry also recognize the cost savings offered by vocational and technical education programs. Postsecondary institutes are often approached to conduct short-term, industry specific training because they can offer training at a much lower cost than other training resources. Often, because they are non-profit, TIs can charge one-fifth to one-half of what other vendors charge. The actual cost per learning

hour for adult education conducted through public education can be as low as $2.00, while private businesses charge, on the average, $38.00 per hour of instruction (Lynch, 1983).

In addition to cost savings, TIs can provide other benefits such as the expertise of the TI staff and flexibility in program development. According to D. Flowers (personal communication, December 5, 1986) a major selling point for a TI system is its extensive experience in developing and delivering training for adults.

State Government Perspective

There are economic advantages for a state that supports vocational and technical schools in providing training for employed workers. As Guilinger (1986) noted, "As has become abundantly clear, a well-trained work force is one of the strongest incentives for industry to locate and expand in any given state. Vocational Education provides that skilled work force" (p. 1). Given the need for upgrading and updating employee skills, businesses are more likely to locate or expand production close to a source of well-trained workers (Geber, 1987). This is especially true as the economy moves from a manufacturing base to a service and technology base.

The development and delivery of short-term, industry based training for employed workers has the potential to be a classic win-win situation. First, technical institutes benefit because staff and facilities are more fully utilized. Second, businesses benefit because they can receive competent training for employees on a cost-effective basis. Third, local and state governments benefit because of increased economic activity resulting from a more highly skilled work force. Yet, given these benefits, little is known about the best way to approach industry based training. While the literature is full of "success stories," there is a dearth of information regarding alternative models of, and the types of planning parameters required for, successful design and delivery of industry based training.

Purpose of the Study

This study was designed to examine the viability of alternative models for short-term training to upgrade and update employed workers (referred to as industry based training or IBT) that could be used by Minnesota Technical Institutes (MTIs).

The following objectives were developed to guide the study:

1. Determine the extent to which alternative models of industry based training are used by business and industry.

2. Determine the importance of each of the planning factors involved in the delivery of industry based training.

3. Determine the extent to which administrative planning factors are related to specific program models.

4. Identify the barriers inhibiting both the delivery of IBT by MTIs and participation by business and industry in IBT.

CHAPTER 2

ALTERNATIVE MODELS OF INDUSTRY BASED TRAINING

This chapter provides a more extensive review of the literature on industry based training. The chapter begins by defining industry based training (IBT). This is followed by a brief description of factors aiding the growth of IBT. From there the focus shifts to the uses of IBT, extending the discussion begun in Chapter 1. The chapter concludes with a description of the conceptual bases for identifying alternative models of industry based training.

Defining Industry Based Training

Industry based training programs have been described in the literature as offering training on a wide range of topics. Topics have ranged from very technical courses in areas such as engineering (Liston & Ward, 1984) and manufacturing (Geber, 1987; McGuire, 1984), to general knowledge courses such as business psychology (Liston & Ward, 1984) and supervisory training (Owen, 1984).

Many different types of industries have used IBT programs. Owen (1984) reported eight different industries, ranging from furniture manufacturers to public service firms, as having used North Carolina IBT programs in just one year. Parnell and Yarrington (1982) discussed IBT programs provided to manufacturing, insurance, data services, defense, electronics, optical fabrication, construction, furniture, and textile industries.

Through its wide use, IBT has acquired a variety of definitions. According to Kopecek (1984), IBT or "customized" training is education designed to meet the needs of a specific firm. Kalamas and Warmbrod (1987) provided a somewhat broader definition for the term. These authors stated that customized training included "those training and training-related services that are or could be offered by a 2-year institution...in response to specific business, industry, and labor needs" (p. 121). They added that this training was beyond the scope of regular class offerings, and functioned more within the field of human resource development. Warmbrod and Faddis (1983) noted that customized training services are used for two purposes. As short-term offerings, customized training programs are used to help new or expanding industries hire and train new employees.

From a human resource development view point, short- or long-term projects are used to upgrade or retrain existing employees. Lloyd (1987) referred to customized training as "company specific...training courses that get to the point without unnecessary frills and in a minimum of time" (p. 22).

Stone and Manion (1988) observed that "customized training" has been used to describe everything from first aid to digital electronics training. For the purpose of this study, industry based training was defined as all training and education programs, provided by external vendors, designed to upgrade and update employed workers. These external vendors may include private consultants, training firms, and vocational-technical schools or systems.

Growth of Industry Based Training

Within the last decade, the number of IBT programs and offerings has increased substantially (Stone & Manion, 1988). This growth can be attributed to four major factors: (a) demographic changes, (b) foreign competition, (c) a changing economic environment, and (d) increased use of technology in the workplace.

Decreased birth rates and the aging of the "baby boom" generation have had major effects on both industry training and vocational education. According to a study reported by the National Alliance of Business in 1986, "90% of those who will be working in 1990 and 75% of those who will be working in the year 2000 are already in the work force" (cited in the Minnesota State Board of Vocational Technical Education, 1986, p. 4). With fewer young people entering the work force, employers are finding it difficult to hire new workers with the skills and knowledge they need. They are finding that in order to maintain a well skilled and knowledgeable work force, they must retrain their current employees (Paulter & Schiavone, 1987).

Demographic changes have also drastically affected the vocational education system. Lower birth rates experienced in recent years, have caused enrollments at vocational and technical institutes to drop dramatically. Lower enrollments have idled instructors, equipment, and facilities. Many vocational and technical schools have identified industry based training as a way to bridge this capacity/enrollment gap (Geber, 1987).

Within the last few decades, foreign competition has had a major impact on American business and industry. Leach (1982) noted that during the 1970s, the United States lost nearly one-quarter of its world market. He reported that this loss cost U.S. business $125 billion in lost production and 2 million lost industrial jobs. Many business people see Japan as the biggest threat to American world market share (Leach, 1982; Luther, 1984;

McGuire, 1984). According to Luther (1984), Japanese products are often seen as being superior to American goods in both cost and quality. He stated that to combat these factors, American businesses must provide training to their employees and involve them in the quality improvement process. This concept is not new. Deming (1982), a recognized authority on quality and productivity improvement, strongly advocated employee training as a means of improving productivity and product quality.

Domestic economic conditions also played a major role in the growth of IBT. During the 1970s, high rates of inflation blurred industry's perspectives on productivity and financial status (Luther, 1984). Many businesses, because of ever increasing prices, were lulled into a false sense of financial security. In the early 1980s, many of these businesses were toppled by a deep and long-lasting economic recession. Many firms closed, while many others made substantial operating changes. As old companies died out, new companies and industries emerged to replace them. Because of the new technologies and procedures employed within these firms, training and retraining employees was perceived as a critical factor in their long-term success (Leach, 1982; Luther, 1984).

The fourth factor affecting the growth of IBT is the rapid rate of technological advancement as typified by the rapid increase in computer use. Luther (1984) noted that computers are common elements in offices and factories. He argued that training was the key ingredient to their effective use. Lloyd (1987), in a concurring opinion, noted that computers and computerized systems have had a dramatic effect on the work force. He cited a Georgia study which projected a need for each skilled worker, in order to keep up with technological advances, to be retrained at least every three to five years.

Uses of Industry Based Training

While business people, state economic developers and school administrators support industry based training, each does so for different reasons. This section summarizes each sector's justifications for using IBT.

Businesses report using IBT for two primary reasons. The first of these is start-up training, the second is employee skill updating and upgrading (Warmbrod & Faddis, 1983).

Many states subsidize customized vocational training programs as a way to attract industries and encourage industry expansion (Warmbrod & Faddis, 1983). According to Goodman (cited in Warmbrod & Faddis, 1983), industry start-up programs can last from one week to one year. In these programs, the state hires instructors, pays for materials, provides facilities (if needed), and often pays trainees' salaries during the training

period. These programs are of substantial benefit to new or expanding businesses because they not only ensure an adequate supply of skilled labor, they also assume a major cost of doing business (Stevens, 1986).

Many firms use IBT programs as supplements to their internal training activities (Geber, 1987). According to Kopecek (1984), many businesses find IBT programs effective and cost competitive resources for employee training. Lloyd Cooper, head of the department of management and development at New Mexico State University in Las Cruces, noted that IBT programs can provide fresh perspective to internal training departments (cited in Zemke, 1985). In addition to direct use of IBT programs, Warmbrod and Faddis (1983) described an increase in other forms of school-based employee training such as tuition-aid and business-school cooperative training ventures.

Moss (1988) urged vocational schools to address the needs of both small and large businesses. He stated that vocational schools should provide training assistance to firms which, individually, are too small to warrant internal training staffs. Small businesses are an important component of the country's overall economy. Leach (1982) quoted Quimby in reporting that small businesses make up 40 percent of the United State's gross national product. Birch reported that approximately 60 percent of the jobs created in the U.S. are created by businesses with staffs of twenty or fewer (cited in Leach, 1982). Based upon these statistics, Moss' proposal that institutions concentrate on preparing employees for the needs of small business appears a logical means to improve the nation's overall economy.

Warmbrod and Faddis (1983) noted that many two-year colleges are heeding Moss' and Leach's advice regarding small business, and are developing programs geared toward their needs. Others have made similar observations. Boyd-Beauman and Piland (1983) said that a large portion of the services provided by an Arizona program were courses and workshops geared toward small businesses. While discussing state spending for IBT programs, Geber (1987) described a New York program that provided training to approximately 1,000 smaller and medium-sized businesses between 1983 and 1987.

While many IBT providers design and develop programs geared for small businesses, others purchase training programs on behalf of small businesses. Geber (1987) reported that in Minnesota and other states, vocational schools purchase training programs from major training vendors with the intention of using them to train employees of small businesses. These businesses would typically be unable to purchase the training on their own. Vendors reportedly allow the arrangements, provided the programs are not delivered to organizations that could afford to purchase them directly.

Kopecek (1984) reported that IBT programs are a major element in the economic success of some areas. Warmbrod and Faddis (1983) noted that many states are using customized training programs to attract new businesses or provide for expansion of existing firms. These authors reported that in one state, labor productivity, which they noted was strongly affected by training, was the second most common factor firms gave for locating in the state. According to Stevens (1986), only six states (Alaska, Hawaii, New Hampshire, Rhode Island, South Dakota, and Wyoming) do not have formalized, state-sponsored, industry-specific training programs. Even these states may be using some form of customized or industry based training for economic development (Liston & Ward, 1984).

Vocational school administrators report many advantages to offering industry based training. As noted earlier, IBT is often seen as a means of employing otherwise idle equipment and facilities (Geber, 1987). Administrators, as a result of IBT activities, report increased interaction with business and industry. This interaction is seen as providing many specific benefits. One important benefit is the updating and upgrading of instructor skills and knowledge (Geber, 1987; Kopecek, 1984). Another benefit is improved school image in the minds of business people (Kopecek, 1984). Kopecek (1984) suggested that IBT programs can spur employees into seeking additional education. This was seen as benefiting the school through future enrollments. In addition, pre-employment students benefit from IBT programs because they are exposed to the skills employers want (Geber, 1987).

Funding was also seen as a major benefit of IBT programs. This funding can come through two channels. First, because many IBT programs are funded directly by the firms requesting training, schools gain a direct source of income (Geber, 1987; Kopecek, 1984). Second, because many states fund IBT programs geared toward economic development, schools providing these services may be eligible for additional government funding (Kopecek, 1984).

Industry based training is not without drawbacks. Kopecek (1984) reported three major problems that could develop within schools offering IBT.

The first of these problems dealt with instructional integrity. Kopecek noted that schools must take care to ensure that instructional standards are not overlooked in favor of pleasing specific organizations or industry groups.

The second problem dealt with IBT's effect on the overall educational institution. Kopecek warned that schools must not neglect their mission as providers of comprehensive pre-employment education. Geber (1987) echoed this concern by

questioning the role pre-employment students play in IBT programs.

The third potential problem is internal to the IBT program. Kopecek said that as much as IBT programs can build relationships with businesses and the community, they can also destroy current relations. He warned administrators and developers to ensure they provide products that meet the firm's requirements and expectations.

A Conceptual Base for Alternative Models of Industry Based Training

Industry based training programs provide employers with a wide variety of ways to update and upgrade employee skills and knowledge. Stone and Manion (1988) categorized IBT courses and programs based upon two factors. These factors were level of program development activity and the level of occupational skill that is the focus of the training. In addition to these factors, this review will include data on the topics commonly offered.

While all industry based training programs are intended to meet the needs of a particular business or industry, the extent of program development activity often varies a great deal. Three levels of program development activity were identified as standardized, personalized, and customized (Stone and Manion, 1988; Weiss 1987). At the simplest level, requiring the least amount of program development, are "standardized" or "off-the-shelf" programs (see Figure 2.1). These courses or programs are sold as predeveloped packages. Very few features are changed or adapted to the specific organization. The two major advantages to prepackaged programs are that they are often less expensive for businesses to purchase, and they require very little development time. This results in a savings of time and money (Fisher, 1979a). Other benefits identified by Fisher include better use of company personnel who can devote more time to areas of critical need and the fact that off-the-shelf programs are ready when the firm needs them.

One major disadvantage of these programs is that they offer no information specific to the company or its operations. A second major drawback is that, because they are available to anyone, these programs can easily be accessed by the client's direct competition.

The second level of program development activity is called "personalized" or "tailored" programs. These programs are described as prepackaged courses and programs that had been substantially altered to better meet the client company's needs. Advantages of these programs are that they are less expensive than fully customized programs, and provide substantial

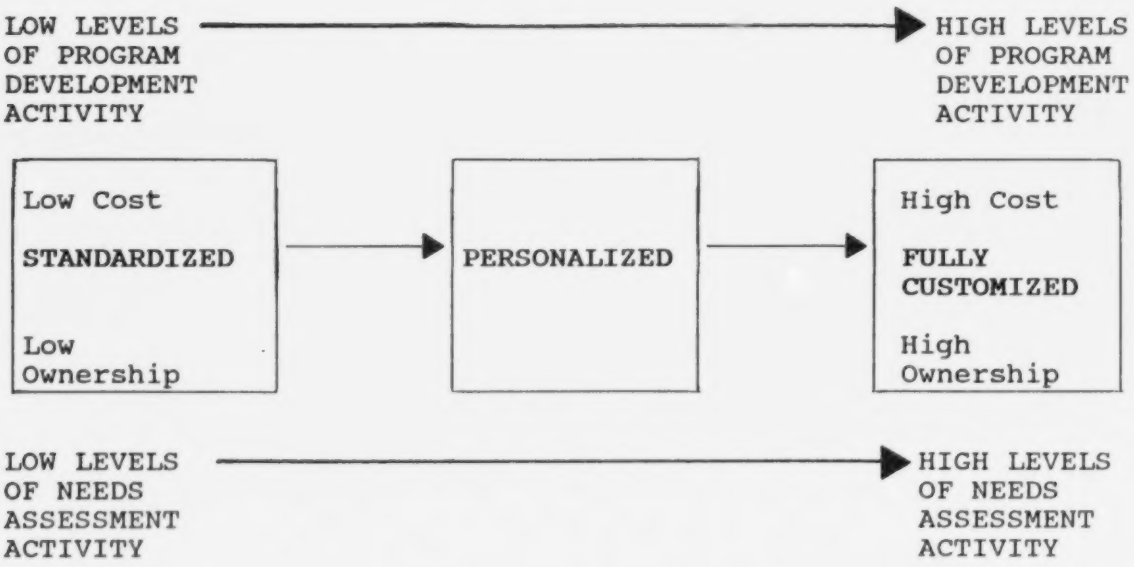

Figure 2.1. Continuum of program development activity.

organization-specific references and data. Clarke (1984) supported this level of customization by noting that it eliminated the need to "...reinvent the wheel..." (p. 26) with each new project. Fisher (1979b) argued that modifying existing courses was a necessity in many instances. The disadvantages of these programs are that they are more expensive than prepackaged offerings, and they take longer to develop (Stone & Manion, 1988; Weiss, 1987).

The third level of program development activity is called "fully-customized" or "custom-designed" programs. These programs are described as being exclusively developed for a specific firm or organization. Kopecek (1984) noted that company staff must assist IBT providers in designing these types of courses in order that they meet the firm's needs. While these programs provide the most detailed and company specific learning experiences, they are also the most costly and time-intensive to develop.

The extent of program development activity a firm uses/requires is a direct outcome of the training needs assessment process (Stone & Manion, 1988). McGuire (1984) described three types of needs analysis that closely resemble the three levels of customization described above. He noted that in one approach, IBT providers conduct extensive meetings with company or industry personnel to determine training needs. Courses or programs are then designed to meet these requirements.

In the second approach IBT providers develop prepackaged training on frequently requested topics. The third approach McGuire suggested is the adaptation of successful customized programs to appeal to a wider population.

According to Lampe (1986), needs assessment is the process of determining variances between how employees currently perform in their jobs, and how their employers would prefer them to perform. Based upon this description, very few of the IBT programs identified in the literature conduct needs assessments. Clarke (1984) described a process typical for IBT programs. He noted that performance problems are most often identified and analyzed by internal managers and supervisors. These people are commonly the ones to identify training as the appropriate solution. They present their recommendations to management, who approve the request and forward the information to the training department. In-house trainers contact IBT providers and request assistance. IBT providers then meet with company personnel to determine specific training solutions and begin program development. One Tennessee IBT provider argued that "a company generally knows what it needs" (Kaplan, 1984, p. 83). This provider's needs analyses are conducted informally by listening to the company's requests and suggesting course content.

Kalamas and Warmbrod (1987) identified four sources IBT providers could use to obtain needs analysis data. These sources included (a) economic development organizations, (b) government training programs, (c) specific businesses, and (d) the provider's own knowledge and experiences. Fielden (1987) noted that within his program, industry training needs were analyzed annually through personal and telephone interviews. To supplement this process, information was gathered from advisory boards, staff, students, and community organizations.

Stone and Manion (1988) noted that IBT programs could also be conceptualized as a function of the level of occupational skills they provide. These authors identified three major skill levels. The first level was general education skills. These included skills needed in nearly every work setting such as writing, math, and interpersonal communications. The second level was generic occupational skills. These skills are needed by employees working within a specific occupational classification, regardless of the organization or industry in which they are employed. While there are countless examples of these types of courses, typical generic occupational programs have focused on such topics as keyboarding, accounting, basic electronics, or sales. The third category is job or company specific skills. This category covers skills needed in a specific job or by individual firms. An example would be training employees to use equipment or processes unique to the client firm. As one moves from general educational skills to generic occupational skills to job specific skills, the

transferability of these skills to other jobs or companies diminishes. Moss (1988), while discussing funding for customized training programs, commented on two of these skill levels. Skills, he suggested, can be thought of as those common throughout an occupation and those specific to a particular firm. All three skill levels are supported by program descriptions throughout the literature (see Geber, 1987; Listen and Ward, 1984; Parnell and Yarrington, 1982; Warmbrod and Faddis, 1983).

By combining the levels of skill development (general, generic, and occupational) with levels of program development (standardized, personalized, job specific), Stone and Manion (1988) created a nine cell matrix conceptualizing alternative models for industry based training. These are graphically portrayed in Figure 2.2.

INDUSTRY BASED TRAINING

	GENERAL SKILLS	GENERIC OCCUPATIONAL SKILLS	SPECIFIC JOB SKILLS
STANDARDIZED PROGRAM	Standardized General Skills Program	Standardized Generic Occupational Skills Program	Standardized Job Specific Skills Program
PERSONALIZED PROGRAM	Personalized General Skills Program	Personalized Generic Occupational Skills Program	Personalized Job Specific Skills Program
CUSTOMIZED PROGRAM	Customized General Skills Program	Customized Generic Occupational Skills Program	Customized Job Specific Skills Program

Figure 2.2. Types and levels of training programs.

Administrative and Planning Factors

Stone and Manion (1988) outlined seven administrative and planning factors critical to the delivery of industry based training. These factors included (a) status of businesses served, (b) promotional activities, (c) program funding, (d) offering of credit, (e) location of courses, (f) instructor characteristics, and (g) evaluation techniques employed.

Two factors can be added to this listing. Conner (1984) argued for the establishment of a liaison position that would coordinate industry training needs and a vendor's training expertise as another administrative factor. Others suggested the development of linkages between institutional providers of IBT programs (Brant, 1982; McGuire, 1984). This section will briefly discuss each of these identified administrative and planning factors.

Status of Businesses Served

As noted earlier, IBT programs are geared toward new or expanding industries as well as existing firms. For example, of the IBT programs described by Parnell and Yarrington (1982), 70% were provided to existing, on-going organizations. By contrast, Warmbrod and Faddis (1983) reported that of the programs they analyzed, 80% provided IBT start-up programs, all provided IBT programs for on-going organizations, and all provided services to small businesses. No IBT delivery patterns emerged from the literature relating to the status of businesses served. This finding suggests that industry based training can be useful to both new and existing firms.

Communication and Promotional Activities

Studies have shown that providers of IBT need to actively promote their services. A study conducted among high-tech firms in Colorado found that the biggest reason firms did not use two-year postsecondary institutions was because they did not know about the services these schools provide to business (Anderson & King, 1984). A Minnesota study found that most participants were eager to learn about the types of industry-related services technical institutes provided (Madson, Brown, MacLachlan, & Stitt, 1986).

A variety of communication strategies were found to be useful in promoting IBT. Boyd-Beauman and Piland (1983) recommended that IBT programs establish action plans for communication. These plans should identify key individuals within the community who should be contacted. Further, these plans should outline specific public relations efforts designed to promote an institution's IBT program.

Clarke (1984) noted that IBT programs, in order to be successful, must use different promotional strategies than traditional day-school programs. He recommended face-to-face contact as the most effective means to promote programs. He noted that news releases and trade articles were also helpful tools. Clarke added that once successful programs are established, informal referrals and repeat customers would aid in program growth. Kaplan (1984) recommended the development of mailing lists and the use of direct mail advertising as valuable promotional devices. In a similar vein, Fielden (1987) recommended that IBT administrators keep records of perspective and past users, and contact these firms at least once a year.

A study conducted by Training (Zemke, 1983) examined methods training managers used to obtain information about programs, instructional aids and materials, and training services. According to this study, the method most preferred by managers for learning about vendor products and services, was referrals from other trainers. Office previews, journal and magazine advertisements, conferences and conventions, direct mail advertisements, and journal and magazine articles were ranked as the second through sixth most desirable methods respectively. Contrary to recommendations made by Clarke (1984), Fielden (1987), and Kaplan (1984), trainers ranked face-to-face interviews as their eighth (of ten) most preferred method of gathering product/service information.

Program Funding

Moss (1988) suggested that the issue of funding was the "...greatest present challenge to operating a successful customized training service in a vocational school...." (p. 24). He suggested that funds could be provided by the state, by the individual, and/or by the client firm. In Moss' plan, the mix of funding between these three sources would depend upon the level of customization and types of skills the course provided. A study conducted by ITT Educational Services (1984), found that, among the 300 senior human resource executives they contacted, those who believed existing IBT programs were adequate thought companies should fund all training. Those professionals who thought a national program was needed, or who thought employees should take a bigger part in their own re-education, favored some combination of funding between businesses, individuals, and the state.

Many of the articles reviewed for this report did not mention IBT program funding. Of those that did, the majority reported the client firm paying all, or the majority of, training costs. Several reported state funding; some noted that trainees paid the cost of training (McGuire, 1984; Owen, 1984; Parnell & Yarrington, 1982). One report noted that the employer and employees shared training costs (Parnell & Yarrington, 1982).

Offering of Credit

Craft and Cook (1987) stated that acquisition of knowledge, not circumstances of learning, should be the primary criteria for decisions regarding credit. These authors noted that many adults become frustrated in their career progress because their academic or occupational credentials are outdated. They called for a system of granting credit for courses offered in non-traditional settings.

Few of the programs reviewed for this report discussed offering of credit. One article (Liston & Ward, 1984) noted that college credit was offered for both long- and short-term courses. It gave no criteria for credit decisions. Parnell and Yarrington (1982) described several programs offering college credit. Many of these courses were prepackaged college courses offered to employees at their place of work. Some were customized apprenticeship programs. The authors offered no suggestions regarding criteria for credit decisions.

Location

Kalamas and Warmbrod (1987) stated that the two primary considerations in selecting a training site were learner accessibility and availability of needed equipment. They identified five possible location options. The first option was at the school. The second option was at the employer's facilities. The third option was a combination of these sites. This combination was seen as beneficial when providing pre-employment or related instruction, as well as when providing specific job skill training. The fourth option was use of other public or private locations such as rented meeting rooms. The fifth option was use of mobile training facilities.

Clarke (1984) reported that most employers prefer to have training conducted at the work-site. The ITT study (1984) echoed this statement. It reporting that 56% of the professionals polled who had participated in IBT, preferred on-site courses. Few articles reviewed for this study discussed training location. Of those authors who commented on the topic, most described courses and programs offered at the employer's facilities. Some commented that classes were offered either on-site or on-campus (Brant, 1982; Parnell & Yarrington, 1982).

In general, the crucial difference in choice of location for training is between on-site training and on-campus training. Stone and Manion (1988) noted that the advantage to on-site training was in having the employees trained on the actual equipment they would use on the job. The advantage to on-campus training was that it may be more cost-effective for the company to send their employees to classes where there are multiple

pieces of equipment (e.g., personal computers) available for student use. A logical extension to this point is that, where equipment is not an issue, other factors may need to be considered. In supervisory training, sales training, or other non-technical training programs, the IBT provider may want to consider comfort of the participants, prestige associated with a particular location, and other similar factors when choosing locations. For each situation, the cost and benefit trade-offs, time constraints, and ease of training need to be assessed when determining the best site.

Instructor Characteristics

Many authors recommend that IBT program administrators maintain listings of prospective course instructors (Clarke, 1984; Fielden, 1987; Kalamas & Warmbrod, 1987; Kaplan, 1984). They noted that, because timing is often a critical issue in IBT course development, there is often little time to recruit instructors after a course has been requested. Clarke (1984) noted that most IBT programs use instructors recruited from business and industry. He reported that while many full-time faculty members possess the skills needed to teach IBT courses, businesses prefer instructors with current, hands-on, content-related experience. Fielden (1987) noted that more than 90% of the instructors used in his program were local business people. Content knowledge and teaching skills were seen as critical characteristics of successful IBT instructors (Clarke, 1984; Fielden, 1987; Kaplan, 1984). Kaplan (1984) stated that when selecting consultants to use as IBT instructors, personal issues such as energy level and attitude toward the project should also be considered.

Clarke (1984) commented that while professionals from business and industry possess strong content knowledge, many need assistance in developing training skills. Reece (personal communication, December 1986) noted that many instructors, both school- and industry-based, have little knowledge of how to teach adults. Kopecek (1984) found that many full-time faculty members may be apprehensive about instructing IBT courses. He stated that industry training required use of unique teaching techniques that may be uncomfortable for day-school faculty. The remedy, according to Reece, is to train consultants, community instructors, and adjunct faculty in adult education principles and effective presentation techniques. This model has been implemented by the Oklahoma State Department of Education (L. Presley, December, 1986). All instructors employed to provide IBT programs are required to successfully complete a 12-day train-the-trainer program before they are permitted to instruct. In addition, they are required to continue their education to maintain certification.

Evaluation of IBT

Few articles reviewed for this project commented on IBT evaluation techniques. Stone and Manion (1988) reported that evaluation is an often neglected element of IBT training programs. They argued that evaluation and the information it provides are critical factors in the growth of effective training programs.

Kalamas and Warmbrod (1987) suggested that trainee evaluation is one method administrators could use to evaluate the effectiveness of IBT training programs. They recommended use of both written and performance tests. Clarke (1984) noted that if pretests are used to evaluate trainee performance in a course, they must be strictly job-related and conform to federal anti-discrimination laws.

Liaison Roles

Connor (1984) recommended that IBT programs be organized using a centralized decision-making structure. He stated that this structure provided advantages to both large and small organizations. Because larger firms are familiar with programs designed by an internal training department headed by a single training manager, they have more confidence in programs administered by one key individual. Smaller firms, because they are often less savvy about training programs, need the structure provided by a single IBT specialist. Kalamas and Warmbrod (1987) noted that IBT programs should provide businesses with a system to expedite decision making and reduce bureaucratic hurdles. Schapiro (1985) recommended that businesses also assign internal training liaisons to facilitate effective customized training projects. He stated that without formal linkages between vendor and buyer, the probability of developing quality training programs was very low.

Connor (1984) said that IBT liaisons should be training generalists. Kalamas and Warmbrod (1987) noted that individuals who serve as links between IBT programs and clients should have the power to make significant administrative decisions. Many authors described programs with business-school liaison positions (see Fielden, 1987; McGuire, 1984; Parnell & Yarrington, 1982; Presley, 1986).

Linkages Between Programs

Several authors commented on the benefits inter-program linkages provide. McGuire (1984) reported that a New York program used many different training providers to develop a comprehensive program. Funding for each segment was provided by the developing institution. Brant (1982) cited two programs

where institutions worked together to ensure development of effective programs. In one, secondary and postsecondary schools cooperated to reduce program duplication. In the second, informal links between different institutions were used to share information and resources. Warmbrod and Faddis (1983) reported that three of the five programs they studied had established linkages with other educational institutions to their mutual benefit.

Summary

Industry based training provided by vocational and technical institutes has grown substantially in recent years for a variety of reasons. Providing IBT has proven beneficial to states, to vocational and technical schools, and to the businesses/employees who purchase these programs. Nine alternative models of IBT may be conceptualized by combining the extent of program development activity on the part of a provider and the occupational skill level at which the training was focused. This conceptual framework formed the basis for the data collection activities within this study.

Several administrative and planning factors or activities that are part of the design and delivery of effective industry based training have been identified and discussed. The question that remains is whether there is a relationship between the nine conceptualized models of IBT and the administrative and planning behaviors of IBT providers.

CHAPTER 3

METHODS OF THE STUDY

To address the objectives developed for this study, four separate research procedures were initiated. These included a telephone survey of Minnesota Technical Institute (MTI) extension directors, focus group interviews with business and industry representatives, personal interviews with five selected extension administrators, and a survey of businesses in Minnesota. In addition, an advisory committee was formed to provide input into the study design, and review the research instrument. A list of advisory committee members may be found in Appendix A.

Survey of Extension Directors

To provide a baseline of information regarding IBT models and administrative factors, a survey of MTI extension directors was conducted in the spring of 1987. Thirty-two directors were contacted and 29 were available to respond. The interview protocol, as developed from the literature review, may be found in Appendix B.

Focus Group Interviews

The second stage of research was directed toward determining business and industry's use of external training. The use of the focus group process at this point in the study was designed to accomplish three objectives:

1. Provide validation of the IBT models developed from the review of literature (see page 13).
2. Provide qualitative data on the objectives of the study.
3. To validate the items to be used in a subsequent survey.

Process

The focus group interviews with representatives from business and industry were conducted at four sites. A preliminary protocol was developed and field tested in a fifth site (see Appendix C). Potential research sites were selected from a list of MTIs provided by an administrator with the State Board of Vocational-Technical Education. Institutes on this list were identified as being actively involved and successful in IBT. The four sites, two rural and two urban, provided a reasonable representation of Minnesota's diverse communities. The extension

director at each school was asked to provide names of businesses that had participated in one or more IBT programs conducted by the MTI. They were also asked to provide a list of businesses that had not used their services, but might benefit from IBT programming.

Two focus group interviews were conducted at each of the four sites. One group consisted of individuals who represented firms for whom the local MTI had provided IBT. The second group consisted of individuals, similar in status, but from firms for whom the local MTI had not provided training. These individuals were asked to discuss training provided by other external vendors. The two groups were labeled "user" group and "non-user" group respectively. All focus group interviews were conducted by teams of graduate students from the University of Minnesota's Department of Vocational and Technical Education.

Focus Group Procedures

Focus group interviews are organized group discussions which are focused around a single theme. The technique evolved out of group interviews conducted by psychiatrists and psychologists. In the early 1950s, the private sector began to adopt and refine the procedures for use in market research (Kruger & Mueller, 1987). In recent years social science researchers have adopted the technique as a time- and cost-effective method to obtain information on attitudes and behavior (Morgan & Spanish, 1984; Schearer, 1981).

Initially, ten to twelve users or non-users were invited to each of the focus groups. The focus group sessions were scheduled to last about two hours. After introductions, participants were asked to respond in writing to a series of "focus" questions. These questions, derived from the review of literature, were designed to cause the participants to think about study issues (see Appendix C). In responding to the focus questions, participants were asked to think about an MTI-provided training program (user group) or externally provided training program (non-user group) that they recalled as being particularly effective.

After participants were given a few minutes to respond to the written questions, the moderator began the interviews. Each interviewer followed a predetermined question route and employed predeveloped prompting questions as needed. All sessions were attended by a co-moderator who took notes during the session. Each session was tape recorded to facilitate analysis. The interviews were analyzed for content themes by the principal investigator and the research assistant for this project.

Site Descriptions

Four sites were selected for the focus group interviews. They were St. Cloud, Rochester, Brainerd, and Pine City, Minnesota.

At St. Cloud, Minnesota, the user group included eight individuals representing five firms that had used St. Cloud TI's Customized Training Services. Six of the representatives were from manufacturing firms. Two were from a local hospital. The number of workers employed in each firm varied from 55 to 1,000 (both extremes were manufacturing firms) and averaged slightly under 400. Seven of the eight participants were line managers, one was a training and communications specialist. Six of the eight were men.

The non-user group included representatives from four firms, all of whom had used external resources (vendors) for employee training. One participant represented a large manufacturing plant (3,700 employees) that had purchased training in Lotus 1-2-3. Another member of the group represented a medium sized (425 employees) graphics firm. This firm had contracted with outside vendors to provide supervisory training and regularly hired printing apprentices. The third member of the group represented an agricultural lending agency (17 employees at the local office) that had taken part in a sales training program. The fourth participant represented a manufacturing company with 500 employees that regularly used external vendors for programs on advanced design and drafting. These classes were used to certify employees in mechanical engineering.

At Rochester, Minnesota, the user group included representatives from seven firms. One participant represented a food store chain that had purchased supervisory training from the MTI. A second representative was from the local Private Industry Council (PIC) and had contracted with the MTI to provide a building maintenance training program for Hmong refugees. The third member of the group represented a government agency concerned with intercultural mutual assistance. This organization had used the TI to deliver cashier training. The fourth member of this group represented an electronics manufacturer for whom the MTI had provided supervisory training. Also included in this group were representatives from a hospital (PC training), another governmental agency (caregiver training for those working with the aged), and a local newspaper (sexual harassment education).

The non-user group included three individuals, two of whom represented firms that had never used external vendors for employee training. The third had used external consultants. The first was a part-owner of a local home nursing care agency with 100 employees, most of whom were part-time. The second

individual was the owner of a local well drilling company with 125 employees. The third individual represented a large hotel with 1,000 employees. (S)he had previously contracted with an area psychologist to provide training in communication skills.

At Brainerd, Minnesota, the user group included nine representatives from four firms. Six individuals from a company/union training committee represented a large (800 employees) milling/paper processing firm. They had used the local MTI to provide welding training. The seventh participant was a data processing supervisor from a large retail company (20 retail units with two regional offices) who had used the MTI to provide word processing training. A government health care agency with 650 employees was represented by the center supervisor. This individual had contracted with the MTI to provide CPR training. The final participant was a training supervisor for an insurance provider with 68 employees. (S)he had used the local MTI for supervisory training programs.

The non-user group was comprised of representatives from four organizations. Two individuals represented a medium size manufacturing firm (122 employees). They had used outside vendors in the past to provide welding and blueprint reading training. Two individuals represented a major soft drink bottler, and had used outside vendors to provide training in trade math, sales, and communications. A local medical center was represented by the Vice President for Patient Services. This organization had contracted with outside vendors to provide training in such diverse areas as employee wellness, stress management, time management, and "achieving success" workshops. The final participant was the superintendent from the local school district. (S)he had employed faculty from the local state university to provide in-service programs on behavior change and attitudes to faculty members. This participant had recently been appointed the locally-based training liaison for an organization planning to open a facility in the area.

The user group in Pine City, Minnesota, included five individuals from five different firms. The local school district was represented by an administrator who had previously contracted with the MTI to provide wellness training as an optional inservice program for school faculty. A branch office of a Minneapolis-based computer manufacturing firm (local office had 96 employees) was also represented. This firm had purchased Lotus training from the MTI. The third participant represented a medium sized (120 employees), community based, non-profit organization for whom the MTI had also provided a Lotus course. The fourth participant represented a small (80 employees) public utility. They had contracted for supervisory training programs for their line supervisors. The last participant represented a local youth rehabilitation center that had used the local MTI to provide CPR training for their staff of 17.

The four participants in the non-user group included a representative from a small (10 employees) wood products firm, one from a small grocery store (35 employees), and two representatives from a medium sized, medical services agency (200 employees). The wood products firm and the grocery store had not used external vendors for training. The agency had used training provided by consultants in the area of CPI-ICOM diagnostic coding. This coding is required for state insurance forms.

Initial interviews were conducted in Anoka, Minnesota, to pilot test the questions for the focus groups. Structured interviews were held with training personnel from four firms that had previously contracted with the MTI to provide training. The first interview was held with the training team from a large, international corporation specializing in the manufacture of beverage equipment for whom the MTI had provided CAD training. The second was held with the personnel director from a local nursing home for whom the MTI had provided training in patient documentation charting. The third interview was held with the manager of a local rural electric cooperative for whom the MTI had provided instruction on the topic of computers. The last interview was held with the training center director from the local power company that had purchased CRT computer operator training from the local MTI.

Interviews with Local Extension Directors

Structured interviews were conducted with the Extension Director at each focus group site. The interview protocol for these sessions may be found in Appendix D. The same interview protocol was used at each site.

Survey of IBT Practices and Preferences of Minnesota Businesses

A survey of businesses in Minnesota was conducted in the spring of 1988. A random sample of 400 businesses was selected (see Oliver & Hinkle, 1983) from the 1987-1988 Minnesota Business Directory (American Directory Publishing Company, 1987).

A survey instrument was developed based upon the results of the focus group interviews (see Appendix E). The initial instrument was reviewed by the project advisory committee and revisions were made based upon their recommendations.

Of the original 400 surveys mailed, 44 were returned as undeliverable. Another 7 survey recipients refused to participate. This yielded a final sample of 349.

Prompting postcards were mailed to non-respondents. A total of 175 usable responses were obtained (50% response rate). A follow-up of 10% of the non-respondents was conducted three weeks after the initial survey. A comparison of non-respondents and respondents was conducted to determine if the two groups were similar on critical demographic factors. This analysis indicated that they were similar and therefore, survey findings may be considered representative of the entire sample.

CHAPTER 4

RESULTS OF THE STUDY

Four objectives were developed to guide the data collection phase of this project. For each objective, specific questions were addressed in the research. The following is a discussion of the findings related to each objective and related questions. Each set of findings will be reported and followed by a brief summary.

The Extent of Industry Based Training in Minnesota

The first objective identified for this study was to determine the extent to which alternative models of industry based training are used by Minnesota businesses and industries. To address this objective, four specific research questions were developed. They were:

Question 1.1. What is the extent of industry based training in Minnesota?

Question 1.2. To what extent do businesses use external vendors for employee training?

Question 1.3. To what extent are alternative models of IBT, as identified for this study, used by business and industry?

Question 1.4. To what extent is the use of the various IBT models a function of specific characteristics of the firm?

Data related to these questions was collected through four different techniques. First, telephone interviews were conducted with 29 MTI extension administrators. Second, focus group interviews were conducted with past "users" and "non-users" of MTI customized training programs. At each focus group site, extension administrators were also interviewed. Finally, a mailed survey was used to gain information from businesses throughout the state.

What is the Extent of Industry Based Training in Minnesota?

As reported by MTI extension directors in the telephone survey, a slightly larger proportion of IBT is directed toward service businesses (53%) than toward production firms (47%).

The private sector is the greater beneficiary of IBT programs. Sixty-nine percent of MTI IBT programming is directed toward the private sector. The remaining 31% is directed toward public and non-profit sectors.

Slightly more than half (53%) of the programs were provided on a MTI campus. Another 39% were provided in-house and the remaining 8% were held in other locations. There was a strong tendency to use outside resources as instructors. Only 24% of the programs employed regular MTI faculty, while 76% reported using instructors from the community and/or industry.

Using definitions developed for this study, the extension directors classified 31% of their programs as standardized or off-the-shelf programs. Forty-two percent were classified as personalized, and the remaining 27% were considered customized. Approximately 13% of the programs were targeted toward general education, 51% toward generic occupational training, and the balance of 36% were targeted toward job specific training.

During the telephone survey, extension directors were asked to list all of the types of businesses for which they had provided IBT. Retail, manufacturing, and health care organizations were the most frequently mentioned clients (see Table 4.1).

Table 4.1

Types of Businesses Served by TI IBT Programs

Type of Business	Frequency of Citation
Retail	27%
Manufacturing	27%
Health Care	26%
Insurance	24%
Finance	22%
Construction	21%
Transportation	20%
Real Estate	18%
Communications	17%
Wholesale	15%
Mining	6%
Agriculture	2%

In a follow-up question, respondents were asked to indicate which type of business they serviced most often. While manufacturing and health care still ranked high, other industries faded significantly (see Table 4.2).

Table 4.2

Types of Business Most Often Served by TIs*

Business	Number of TIs Reporting
Manufacturing	13
Health Care	12
Retail	5
Mining	3
Insurance	2
Transportation	2
Financial	1
Fire Departments	1

Note. *N=29. Totals exceed N due to multiple responses to question.

Administrators were asked to list the types of training they offer. The most frequently cited program topics were communications, career counseling, employee retraining, and customer service (see Table 4.3).

Administrators were asked to comment on needs assessment activities. Their responses indicated that needs assessments were more frequently conducted by school based personnel than by any other group (see Table 4.4).

Within most programs, training evaluations were conducted upon course/program conclusion. While most administrators reported using only participant evaluations, a few mentioned that company representatives also evaluated courses. Few programs reported evaluating student performance in courses where evaluation was not mandated by certification requirements. Seven extension administrators mentioned they conducted informal follow-up evaluations with the client companies. Another five indicated a more formal procedure for follow-up, most often an interview or meeting with company personnel.

These findings concur with responses administrators provided during the individual interviews which were conducted concurrently with the focus group sessions. During these interviews, MTI extension administrators were asked to comment on the types of industry based training they had provided. Most of

Table 4.3

Types of Training Offered by TIs

Type of Training	Frequency of Citation
Communications	11
Career Counseling	11
Employee Retraining	11
Customer Service	10
Accounting	9
Management/Supervisory Training	8
Sales Training	8
Pre-Employment Training	8
Train the Trainer	7
Technical Training	6
Writing	6
Health Care	5
Performance Appraisal	5
Industrial/Manufacturing	3
Computer Training	2
Business Law	1

Table 4.4

Needs Assessment

Source	Frequency of Citation	
School Administrator	21	
School Faculty	16	
School Needs Assessment Specialist	7	
School-Based Subtotal		44
Company Administrator	10	
Company Trainer	9	
Company Needs Assessment Specialist	8	
Company-Based Subtotal		27
Other	9	

the courses they described had been delivered in a personalized format. The second most common format was standardized. Courses were split nearly evenly between the three skill levels. Figure 4.1 summarizes the courses discussed in the interviews and categorizes them by IBT model type (see Stone & Manion, 1988).

	General	Generic Occupational	Job Specific
Customized			Waste Energy Seminar Hazardous Materials
Personalized	Machine Shop Math Balancing Work and Family	Supervision Miscellaneous Subjects	Electronics Training Sexual Harassment Miscellaneous Subjects
Standardized	Miscellaneous Subjects Computerizing Small Business First Aid/CPR Supervisory Management	Supervisory Management Computerizing Small Business	

Figure 4.1. Courses described by MTI administrators

Several administrators elaborated on the conceptual matrix during the interviews. Administrators at one site said that they offered training at each end of the IBT spectrum. Their courses ranged from very standardized general courses, to highly personalized company or job specific programs. These administrators said that fully customized programs were the domain of private consultants. Another administrator estimated that approximately 60% of the courses provided to businesses contained general occupational information. The remaining 40% applied to job or company specific training needs.

To What Extent Do Businesses Use External Vendors for Employee Training?

The results of the mailed survey show that 30.5% of the firms contacted did not use outside vendors for employee training. Of those firms that did use outside vendors, slightly more than one-third identified local technical institutes as a current training resource (see Table 4.5).

Table 4.5

Sources of Industry Based Training

Vendor	Percentage*
Technical Institute	35.7
Community College	14.3
University of Minnesota	12.9
State Colleges	10.7
Private Colleges	10.0
Private Vendors	44.3
Others, Not listed	16.4
Do not use vendors	30.5

Note. n = 175.
*Multiple responses allowed.

To What Extent Are Alternative Models of IBT Used By Business and Industry?

Two of the four techniques used to gather information for this study provided insight into this question. These techniques were the industry survey and focus group interviews.

In the industry survey, respondents were asked to review Stone and Manion's (1988) IBT model and estimate what percentage of their externally provided training fell into each category. In general, the survey data on the use of specific models (see Table 4.6) show some use of all nine model types, although certain models were used more often than others (please refer to Appendix F for a description of models). For this analysis, use of model type was coded as "No Use," "Low Use," "Moderate Use," and "High Use." Low use firms reported between 1% and 33% of their externally purchased training associated with the specific model type. Moderate use firms reported between 34% and 66% of their externally purchased training associated with the specific model type. High use firms reported more than 67% of their externally purchased training associated with the specific model type. It should be noted that there was a high level of non-response or missing data on this variable (67%). Because of this, findings that include analysis of the use of specific models should be viewed with caution.

In examining reported usage, the relatively high reported non-use of the various models should be noted. The number of firms reporting no use of the specific models ranged from more than 70% for the Personalized General Education and Customized General Education model to a low of 38.6% for the Standardized Job Specific model. This finding is consistent with early speculation regarding the efficacy of the IBT matrix for the Personalized and Customized General Education models, but not for the Standardized Job Specific model (see Stone & Manion, 1988). Table 4.6 also allows a comparison, on the same question, between all survey respondents and for those respondents which reported use of MTIs for employee training. Responses for MTI users are found in the parentheses.

In analyzing the use of each model from low-use to high-use, the most frequently mentioned high-use model was the Standardized Job Specific model (14.0%). When the question was asked of the sub-sample who had used MTIs as providers of IBT, the most frequently mentioned high-use model was the Customized Job Specific model (12.2%).

A more graphic analysis is offered in Figures 4.3 to 4.11. These figures suggest similar patterns of IBT model usage between all users of external vendors and those who reported using MTIs. Users of MTI IBT programs generally report higher levels of "no use" and tend to show lower use at all three levels. The most marked differences in usage patterns between groups is in the use of Standardized Generic Occupational programs and Standardized Job Specific programs. These data suggest that businesses that use MTIs for employee training are less inclined to look to them for standardized programs targeted at these two occupational levels, than are all Minnesota businesses. However, it should be noted that for firms reporting some use of a particular model,

Table 4.6

Reported Use of IBT by Model Type

Percent of Firms Reporting	Standardized General Education		Standardized Generic Occupational		Standardized Job Specific	
No Use	61.4[1]	(68.3)[2]	57.9	(75.6)	38.6	(63.4)
Low Use	26.3	(22.9)	19.3	(12.2)	31.6	(19.5)
Moderate Use	5.3	(2.4)	14.0	(7.3)	15.8	(7.3)
High Use	7.0	(7.3)	8.8	(4.9)	14.0	(9.8)
Total Percent	100	(100)	100	(100)	100	(100)

Percent of Firms Reporting	Personalized General Education		Personalized Generic Occupational		Personalized Job Specific	
No Use	77.2	(75.6)	57.9	(65.9)	59.6	(70.7)
Low Use	21.1	(14.6)	28.1	(17.1)	24.6	(17.1)
Moderate Use	1.8	(4.9)	10.5	(9.8)	12.3	(12.2)
High Use	0.0	(4.9)	3.5	(7.3)	3.5	(0.0)
Total Percent	100	(100)	100	(100)	100	(100)

Percent of Firms Reporting	Customized General Education		Customized Generic Occupational		Customized Job Specific	
No Use	71.9	(75.6)	68.4	(75.6)	56.1	(53.7)
Low Use	17.5	(17.1)	21.1	(14.6)	22.8	(19.5)
Moderate Use	5.3	(2.4)	8.8	(7.3)	15.8	(14.6)
High Use	5.3	(4.9)	1.8	(2.4)	5.3	(12.2)
Total Percent	100	(100)	100	(100)	100	(100)

[1] N = 57
[2] N = 41

Note. ( ) the percentage of IBT use as reported for firms using Technical Institutes for IBT

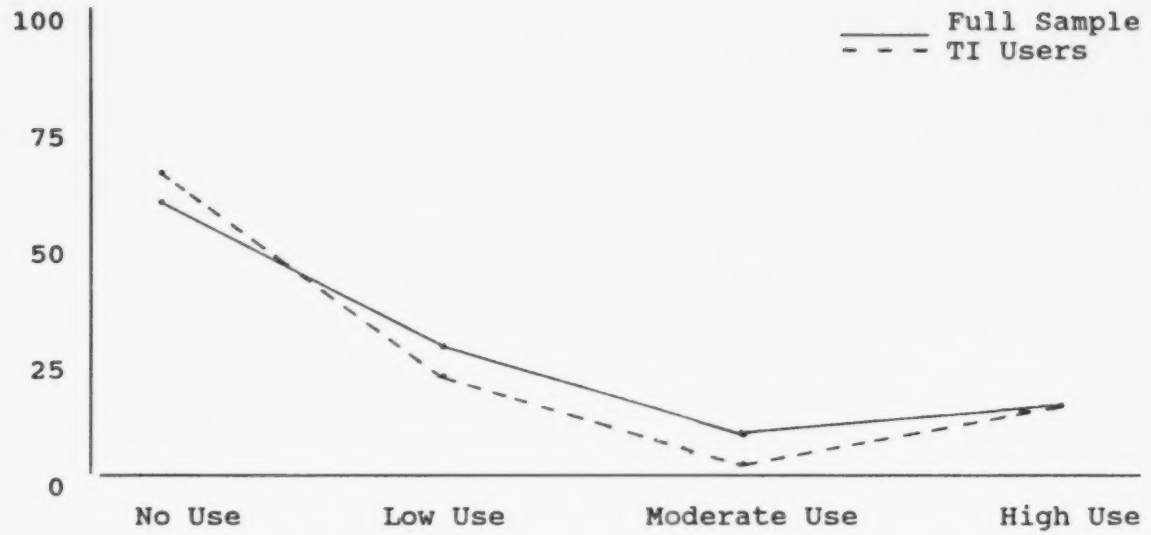

Figure 4.3. Usage patterns of standardized general education model.

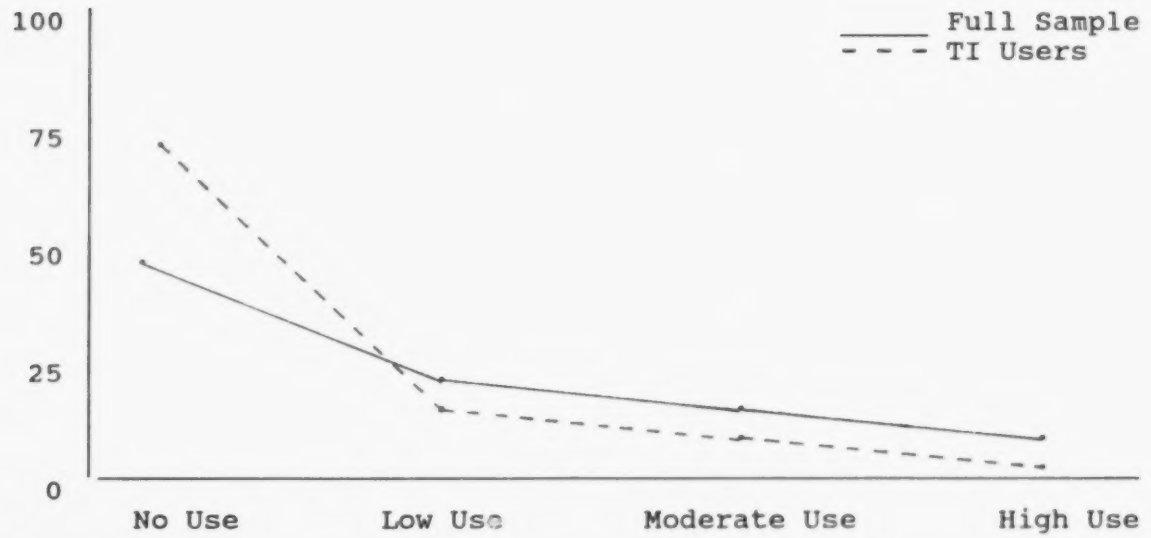

Figure 4.4. Usage patterns of standardized generic occupational model.

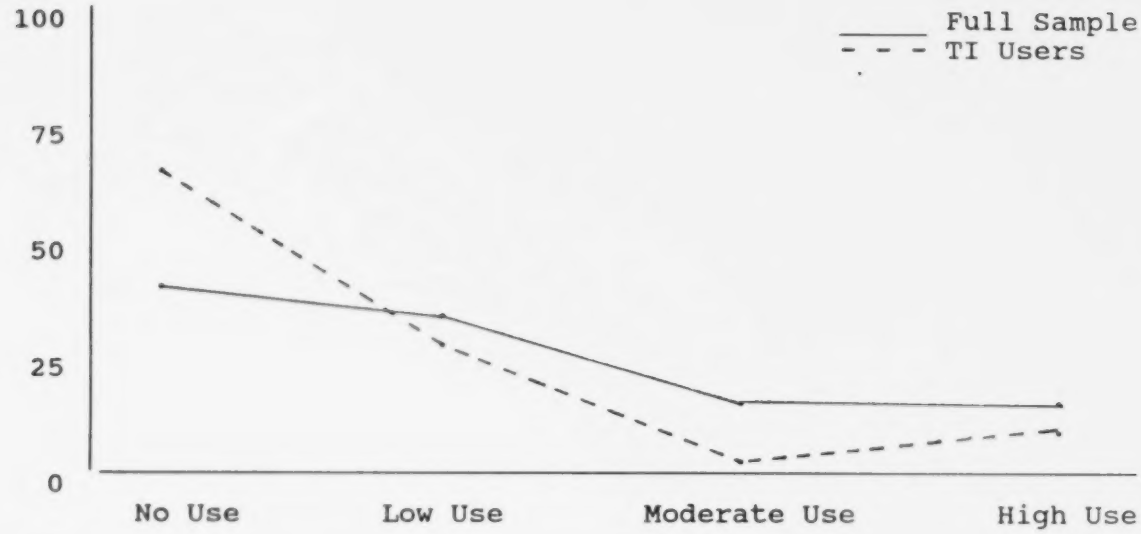

Figure 4.5. Usage patterns of standardized job specific model

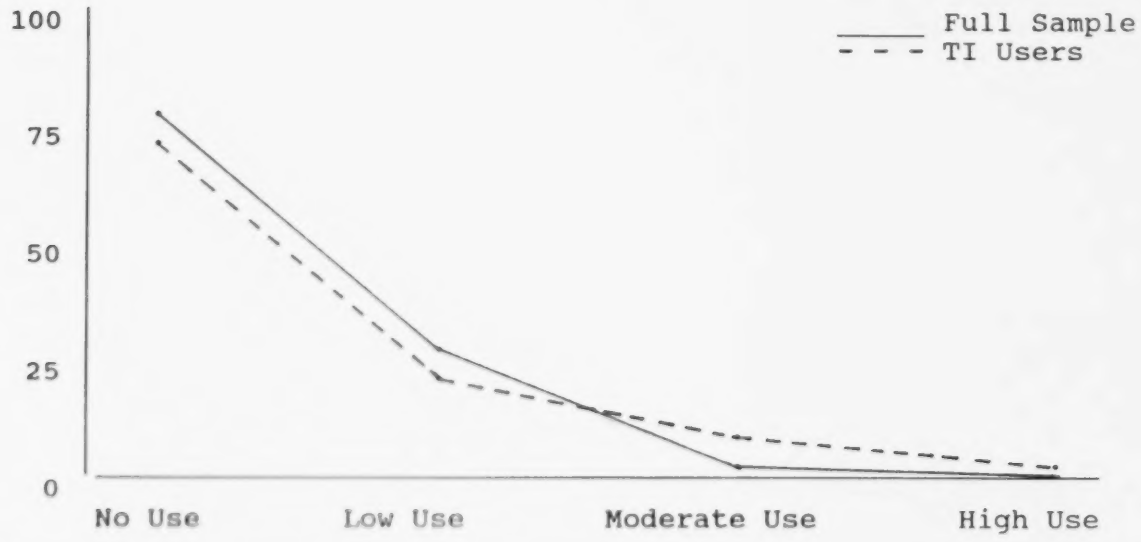

Figure 4.6. Usage patterns of personalized general education model.

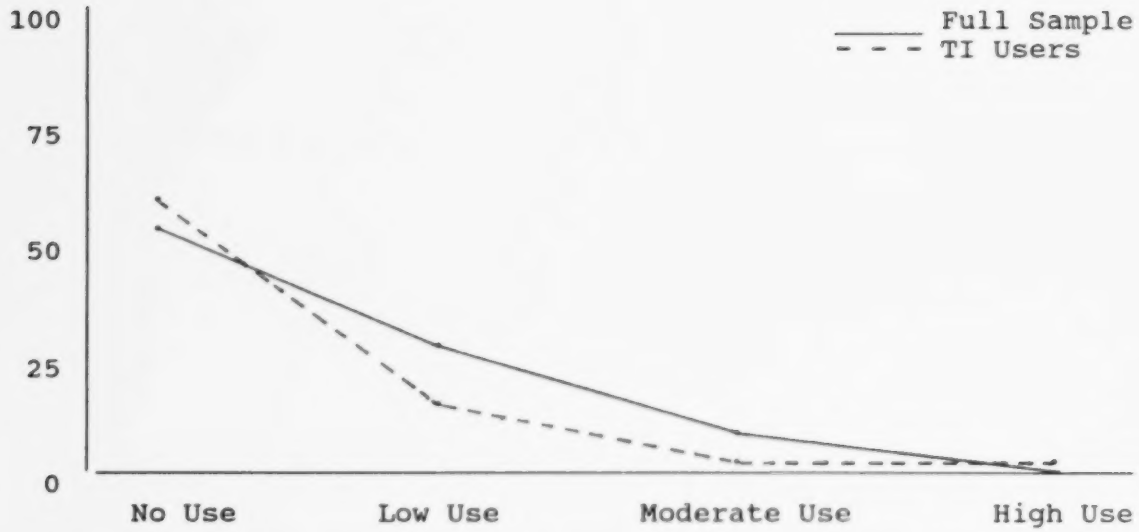

Figure 4.7. Usage patterns of personalized generic occupational model.

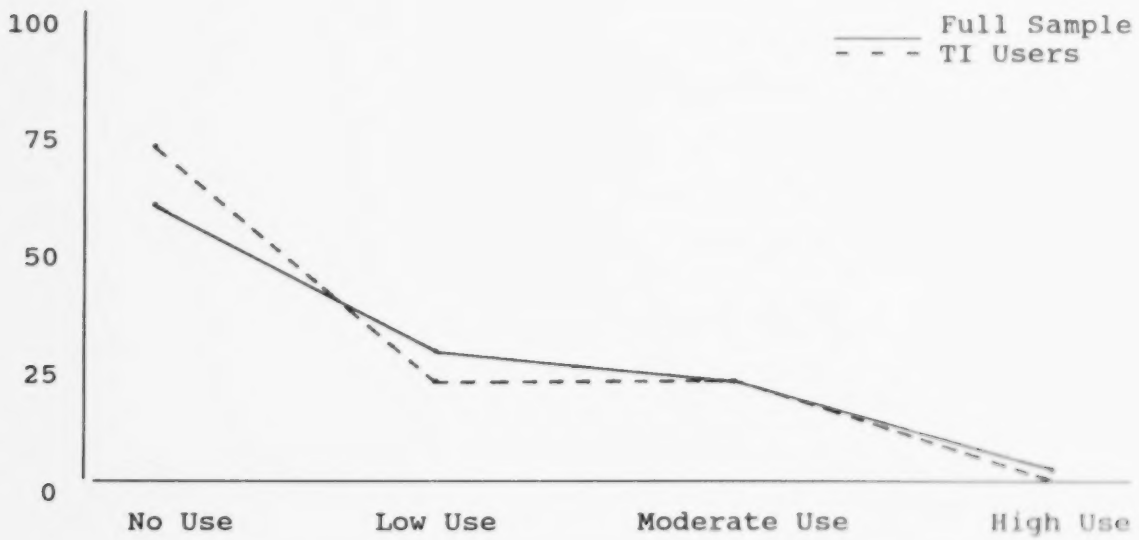

Figure 4.8. Usage patterns of personalized job specific model.

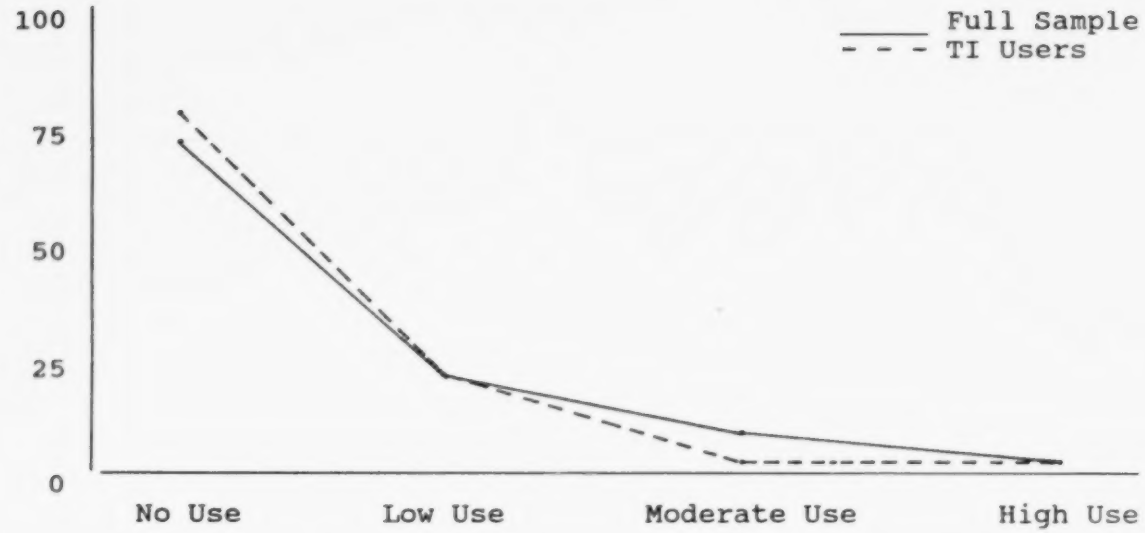

Figure 4.9. Usage patterns of customized general education model.

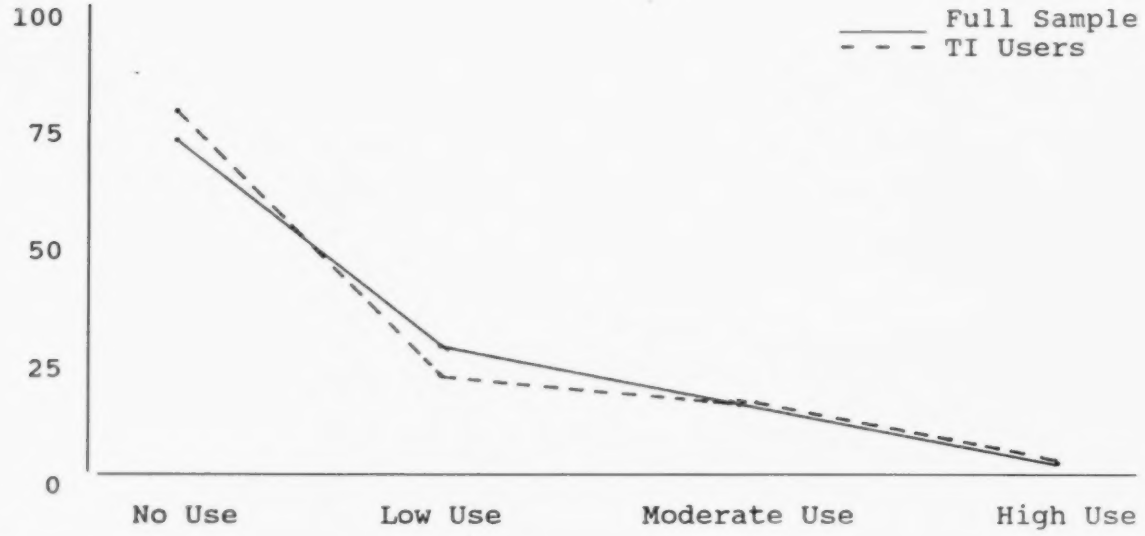

Figure 4.10. Usage patterns of customized generic occupational model.

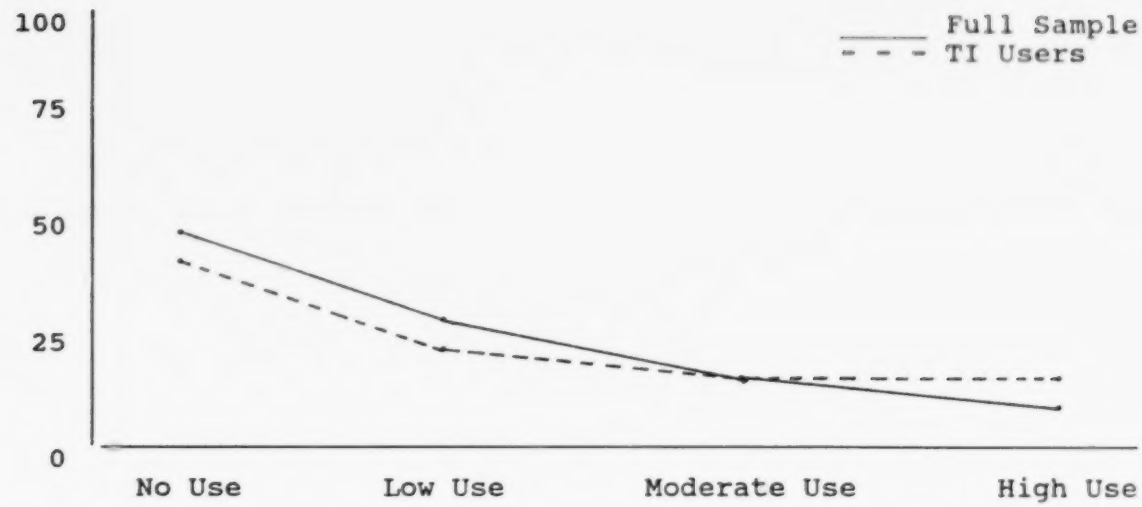

Figure 4.11. Usage patterns of customized job specific model.

for all models except Standardized Generic Occupational training, more than half report low use of that specific model. For the Standardized Generic Occupational model, more than half of the firms reporting some use reported moderate to high use.

These data are not consistent with the information provided by the focus group interviews. When participants in both the user and non-user groups were asked to identify specific programs they felt were particularly effective, they tended to focus on programs classified by the interview team as either Standardized Generic Occupational, or Personalized Generic Occupational.

The majority of courses described by MTI IBT program users dealt with generic occupational skills (see Figure 4.12). The balance of courses focused on general skills, with the exception of one course containing primarily job or company specific content. Over half of the identified courses had been personalized to the firm requesting training. The level of personalization varied from providing company specific examples and exercises (minimum level of personalization) to significantly altering the content presented in a course to meet the needs of the firm. A smaller number of courses used standardized formats. In some of these cases, companies specifically requested that the MTIs conduct special sessions of a pre-existing course specifically for their employees. In other cases, companies requested training on a topic and were provided with a standardized course. Only one course was described by the participants as fully customized. This course was a welding course offered to a large paper processing firm.

	General	Generic Occupational	Job Specific
Customized		Welding	
Personalized	Lotus 1-2-3 Employee Wellness Computer Skills	Nurses Aid Hydraulics Supervision Word Processing Supervision Supervision Supervision Personal Computers Respite Education	Sexual Harassment
Standardized	Lotus 1-2-3 CPR	Welding CAD Supervision Medication Training Supervision Building Maintenance Cashier Training Miscellaneous Subjects	

Figure 4.12. Courses described by "user" focus groups

Participants who had not used MTI IBT programs (non-users) were asked to describe the most valuable vendor-delivered employee training course their organization had purchased or used. The majority of courses these people described dealt with generic occupational skills (see Figure 4.13). A smaller portion covered general skills. Fewer yet addressed specific job or company training issues.

Courses described by MTI IBT non-users were evenly divided between standardized and personalized formats. In two cases participants mentioned that courses had changed from standardized to personalized formats. One of these courses was delivered as a standardized course the first time it was offered to the organization. The second time the organization requested the course, the vendor personalized it to the firm. The second course started off using a standardized format, but became more personalized the further the participants progressed in the course. Two participants reported having used fully customized training programs. One of these programs was a management course developed specifically for a national beverage company. The other was a course that a cabinet maker said her/his employees needed in order to understand procedures for working with hazardous waste on the job. One participant noted that courses covering general topics could be developed "generally" and personalized for businesses as needed.

To What Extent is the Use of the Various IBT Models a Function of Specific Characteristics of the Firm?

Some of the reported differences in the use of the various IBT models may be a function of specific firm characteristics. In this study, six dichotomously-coded firm characteristics were identified (see Table 4.7).

Firms were classified as strictly local or multiple site organizations (Firm Sites). They were classified by size as a function of the number of employees (Firm Size). Firms with fewer than 50 employees were classified as small, those with more than fifty employees were classified as large.

Responding firms were classified based upon whether employee training was provided only on a local basis or if they used non-local training opportunities (Training Source). Firms were also classified according to their geographic location (Location). Respondents were identified as being located in the Twin Cities or in Greater Minnesota.

In addition, firms were classified based upon the presence of a formal training function in the organization. Firms with a training department or a training specialist within an HRD department were classified as having a formal training

	General	Generic Occupational	Job Specific
Customized		Welding	Management Skills Hazardous Waste
Personalized	Personal Computers	Engineering Sales Sales Medical/Insurance Codes Hazardous Waste CPR Supervision/ Communication	
Standardized	Counseling Skills Miscellaneous Subjects	Engineering Sales Welding Blueprint Reading Wellness Food Stamp Laws	

Figure 4.13. Courses described by "non-user" focus groups

Table 4.7

Profile of Respondents
(N = 175)

Firm Organization	Percentage
Single Site Firm	56.2
Multi Site Firm	43.8
Firm Size	
Small Firms (50 ≤ employees)	59.2
Larger Firms (50 > employees)	40.8
Training Source	
Rely on Local Training Only	45.0
Use Non-Local Training	55.0
Firm Location	
Located in Twin City Metro	22.7
Located in Outstate	77.3
Training Structure	
Training Department	10.2
Training Specialist within HRD	6.7
Managers/Supervisors Handle Training	58.4
Training Committee	4.8
Other	19.9
Firm Type	
Manufacturing Firms	56.2
Service Firms	43.8
Survey Respondent	
Manager	29.4
Owner	15.3
Personnel	11.8
Training	3.5
President	7.6
Other	32.4

Table 4.8

Summary of IBT Model Use by Preferences by Firm Characteristic

Model Type	Line[c]	Firm Sites	Firm Size	Training Source	Location	Training Structure	Firm Type
Standardized							
General	1	6.91[a]*(.348)[b]					7.93* (.373)
Education	2	--					8.64* (.459)
Standardized							
Generic	1						
Occupational	2						
Standardized							
Job Specific	1		7.34**(.359)		7.11**(.356)		
	2		6.27**(.391)		--		
Personalized							
General	1			--			
Education	2			6.60** (.401)			
Personalized							
Generic	1		--				
Occupational	2		7.10**(.416)				
Personalized							
Job Specific	1				--	8.48* (.389)	
	2				5.28**(.359)	--	
Customized							
General	1			--			
Education	2			12.36* (.549)			
Customized							
Generic	1						
Occupational	2						
Customized							
Job Specific	1			8.15* (.378)	--	--	
	2			--	12.26* (.547)	7.68* (.438)	

[a] Chi Square statistic
[b] Cramer's V
[c] Line 1 = Chi Square statistic for all reporting use of external vendors
Line 2 = Chi Square statistic for firms reporting use of TI as external vendor
*$p \leq .05$
**$p \leq .10$

structure. Those without were classified as not having a formal training structure (Training Structure). Finally, firms were classified according to the nature of their business (Firm Type). The two classification categories used were service and manufacturing.

A crosstabular analysis was conducted to determine if there was an association between the six firm characteristics and a firm's use of external training vendors (line 1 of Table 4.8). A second crosstabular analysis was conducted to determine if there was an association between the six firm characteristics and a firm's use of MTIs for employee training (line 2 of Table 4.8). Table 4.8 reports only the Chi-Square statistic for all associations where $p \leq .10$. Also reported in this summary table is the Cramers V coefficient which is a measure of the strength of association in Chi-Square analysis. This statistic is analogous to the Pearson r. Similarly, the value ranges of the Cramers V are between 0.00 and 1.00. Complete crosstab tables may be found in Appendix G, Tables G1 to G14. A brief discussion and summary tables of these findings follow.

In general, these data do not show a consistent pattern of IBT use as a function of the six firm characteristics used as classification variables. While no patterns of use developed, there are specific associations worth noting.

Firm Sites

Single site firms were less likely to report "no use" of Standardized General Education and more likely to report "low" or "high use" of this IBT model than were firms with more than one location. There were no other differences found on this classification variable.

Firm Size

With reference to Table 4.8, firm size is associated with the reported use of Standardized Job Specific programs. Large firms were more likely to report "no use" of Standardized Job Specific IBT programs in general, and also for MTI provided programs. Small firms were nearly eight times more likely to report "high use" and slightly more likely to report "low use" of these same types of programs for all vendors. Similarly for firms having used MTIs, small firms were more likely to report "low" or "high use" of this model of IBT.

Large firms which had used MTIs for employee training were less likely to report "no use" and more likely to report "low use" or "high use" of Personalized Generic Occupational training. Small firms were somewhat more likely to report "moderate use."

Training Source

There were significant associations between whether or not all employee training was conducted locally and three of the IBT models. For users of Customized Job Specific programs, firms that conduct all employee training locally were slightly less likely to report "no use." However, firms that reported use of non-local employee training were more likely to report "low use," or "moderate use" of this model.

Firms that reported using MTIs as vendors of training and that did all their employee training locally were less likely to report "no use" and more likely to report at least "low use" of MTIs for Personalized General Education programs. Similarly, the same type of firm was less likely to report "no use" and more likely to report "low and moderate" use of MTI provided Customized General Education IBT programs.

Firm Location

Whether a firm was located in the Twin Cities Metropolitan area or in Greater Minnesota was associated with three of the IBT models. This study found that firms in Greater Minnesota were more likely to report "no or low" use of Standardized Job Specific IBT programs while Metro area firms were more likely to report "moderate and high" use of this model.

While there was some evidence of differences in reported use of Personalized Job Specific and Customized Job Specific models based upon the firms location, insufficient cell size reduced the efficacy of further analysis.

Training Structure

Two models were associated with the presence or absence of a designated training specialist on the firm's staff. Firms that did not have a training department or a training specialist were much more likely to report the use of Personalized Job Specific IBT programs.

For those firms reporting the use of MTIs to provide IBT, firms with no organized training function were more likely to report using MTIs for Customized Job Specific programs. Firms with an organized training function were evenly divided between reporting "no use" and "high use" of MTIs to provide this type of programming.

Firm Type

The crosstabular analysis showed that service firms were much more likely to report "no use" or "low use" of Standardized

General Education IBT programming than were manufacturing firms. These findings held true when all vendor use was analyzed as well as when MTI users were analyzed separately.

Summary

Minnesota Technical Institutes report conducting a wide array of industry based training. Most of this training is concentrated in the manufacturing and health care industries. Extension administrators reported that they, or a faculty member, conducted needs assessments more often than did firm representatives. They indicated that a plurality of their programs were personalized with off-the-shelf and customized programs comprising the balance. The majority of these programs were targeted toward generic occupational skills.

Firms in the survey reported some use of each of the IBT models, but more firms reported, in order, use of the standardized job specific, customized job specific, standardized generic occupational, personalized generic occupational and personalized job specific models than any of the others. This was inconsistent with the focus group results which suggested the most commonly used models were standardized generic occupational and personalized generic occupational.

The survey data revealed that certain firm characteristics were associated with levels of use of specific IBT models. However, no useful patterns emerged from the data.

Administrative and Planning Factors

The second objective of this study was to determine the importance of each planning factor involved in the design and delivery of industry based training. Using a survey research method, this study identified business preferences regarding communication with IBT vendors, location of training, availability of credit, needs assessment activities, instructor characteristics, and evaluation of training. It also explored the extent to which these preferences were associated with specific firm characteristics. Focus groups were used to provide data on businesses' attitudes toward MTI vendor/client liaisons and the need for linkages between IBT providers.

Stone and Manion (1987) identified seven administrative or planning factors associated with the design and delivery of IBT. These seven were slightly modified for this study. Needs assessment activities were identified as a distinct factor, and business status, defined by characterizing a firm as either new or established, was not used. This last factor was dropped as there were no new firms identified in the sample and none of the MTIs in the study reported providing IBT for this purpose. The seven planning factors used in this analysis were

(a) communication techniques, (b) location of training, (c) funding of job related training, (d) availability of credit for training programs, (e) instructor characteristics, (f) evaluation activities, and (g) needs assessment activities. For each of these factors, relative dimensions were identified and explored (e.g., the credit factor had two dimensions: college credit vs. CEU credit).

The study examined two questions regarding each of these planning factors. The first was the importance of each dimension within a factor relative to the other dimensions within that same factor. The second was the association between firm (e.g., firm size) characteristics and factor dimensions. The analysis that follows examines each question for the entire sample and also for the sub-sample of MTI users.

In the following discussion, survey findings will be presented. These findings will be followed by a summary of the findings from the user and non-user focus groups and the extension administrator interviews. In the focus groups, participants were asked to comment on the seven administrative parameters Stone and Manion (1988) identified in their model. In addition, participants were asked to describe the type of needs assessment conducted for each course they discussed. While administrators were not asked to comment on each of these factors, most volunteered information covering many of the points.

Communication Techniques

Earlier research (Stone & Manion, 1987) identified six of the most common means external vendors use to communicate with businesses about industry based training. These communication dimensions included (a) catalogs listing all programs available from a particular vendor, (b) in-depth program brochures, (c) visits from representatives of vendors, (d) a vendor contact person readily available, (e) samples of training available for preview, and (f) flyers on specific programs or courses.

The most preferred form of communication for all firms was a flyer on a course or a program (see Table 4.9). The least preferred were periodic visits from vendor representatives. The relative ranking of these six dimensions was essentially the same for firms reporting the use of MTIs to conduct IBT, with the exception of the reversal of number 2 and number 3 ratings. The firms having used MTIs also had slightly higher mean scores on all but periodic visits from a vendor representative (ranked 6 of 6).

Table 4.9

Preferences Regarding Communication

Communication Format	All Vendors (N=175) $\bar{x}$*	(SD)	Rank	MTI Only (N=49) $\bar{x}$	(SD)	Rank
Catalog Listing of Programs	2.27	(1.4)	2	2.22	(1.3)	3
In-Depth Brochure	2.38	(1.3)	3	2.09	(1.2)	2
Visit from Vendor Representative	3.78	(1.4)	6	3.96	(1.2)	6
Representative Available to Contact	2.68	(1.3)	4	2.53	(1.3)	4
Samples of Training to Preview	2.93	(1.4)	5	2.75	(1.3)	5
Flyer on Course or Program	2.03	(1.2)	1	1.96	(1.2)	1

Note.
*Scale: 1 = most preferred
5 = least preferred

To determine if there were characteristics of the firm that affected the mean scores on communication preferences, a series of one-way analyses were conducted. The results are summarized in Table 4.10. These characteristics included the same six used in the analysis of Objective 1: (a) firm size, (b) number of firm sites, (c) locality of training, (d) geographic location of the firm, (e) the presence of an organized training function within the firm, and (f) the type of business.

Firm Size

Firm size was associated with differences in preferences for catalogs and samples within all firms studied. Large firms scored significantly higher on preference for catalogs and samples (including videotapes and cassettes) than did small firms. When considering only those firms that had used TIs for IBT, larger firms were significantly more likely to prefer catalogs and periodic visits from a vendor's representative than were small firms.

Firm Sites

Multiple site firms were more likely to prefer having a representative available to contact when they required information. This was true for all respondents in the sample as well as the sub-sample of MTI users.

Table 4.10

Summary of Communication Preferences by Firm Characteristic

Variable		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
Catalog	a	2.59	1.97*	--	--	--	--	--	--	--	--	2.57	2.08*
	b	2.61	1.83*	--	--	--	--	--	--	--	--	--	--
Brochure	a	--	--	--	--	--	--	--	--	--	--	--	--
	b	--	--	--	--	--	--	--	--	--	--	--	--
Periodic Visits	a	--	--	--	--	--	--	--	--	--	--	--	--
	b	4.32	3.61*	--	--	--	--	--	--	--	--	--	--
Available Rep	a	--	--	2.47	2.83**	--	--	--	--	--	--	--	--
	b	--	--	2.10	2.92*	--	--	--	--	2.29	2.80**	--	--
Samples	a	3.17	2.56*	--	--	--	--	2.88	3.67**	--	--	--	--
	b	--	--	--	--	2.53	3.33**	--	--	--	--	2.29	3.08*
Flyer	a	--	--	--	--	--	--	--	--	--	--	--	--
	b	--	--	--	--	--	--	--	--	--	--	--	--

Note.
Line a = Coefficients for all Firms (N=175)
Line b = Coefficients for firms that have used TIs (N=49)
*p ≤ .05
**p ≤ .10

Training Source

Firms that had previously used MTIs for employee training and had indicated all of their training was conducted locally, were less likely to prefer the availability of samples such as video and audio cassettes than were similar firms that used local and non-local training resources.

Firm Location

Firms in Greater Minnesota were more likely to prefer training samples than were firms located in the Twin Cities Metropolitan area.

Training Structure

Firms that were MTI users and had a formal training function were more likely to prefer the availability of a vendor representative than were firms without a formal training function.

Firm Type

Manufacturing firms showed a significantly higher preference for catalogs than did service firms. However, service firms that had previous experience with MTIs were more likely to prefer the availability of samples than were manufacturing firms.

These data suggest that firm characteristics (specifically firm size and type) influence a firm's preference for certain types of promotional, training-related communication. Large firms, as measured by the number of employees, were more likely to prefer the use of catalogs, periodic visits from a vendor representative (if they had used MTIs in the past), and samples of the training sent to them by the vendor. Service firms that were MTI users were more likely to prefer samples from the vendors. All service firms were less likely to prefer catalogs than were manufacturing firms. While other differences were noted, no preference patterns were identified.

Participants in the user focus groups indicated that personal contact was the most common form of promotion for MTI IBT activities. This is consistent with some of the previous research but contradicts both Zemke (1983) and the survey results in this study. Brochures, mailings, and newspaper advertisements were also mentioned by several participants. One participant said (s)he had learned about the MTI through a speaker at a meeting. Another said (s)he had initiated contact by calling the MTI asking if they provided training to businesses.

Two of the non-user focus groups discussed ways they preferred to learn about training courses and vendors. Participants in one group mentioned personal contact, trade associations, and equipment vendors. Participants from the other group said they preferred brochures and computerized networking systems. Participants in the second group said they did not like training vendors to call them. Comments that participants from this group made later in the discussion indicated that while they did not like sales calls from most training vendors, they would be open to meeting with MTI administrators.

Two of the extension administrators discussed communication activities. One said that her/his MTI was actively marketing itself as "The place for small business training." Another administrator discussed specific promotional activities for two courses. For one course this administrator reported that another MTI had recommended the business contact her/his school. For the other course (a CPR class) the administrator noted that businesses often learned of this class through brochures, news articles, or advisory board members. The administrator added that this class often served as a good "entre" for providing other sorts of training within a firm.

Training Location

A second important aspect of the design and delivery of IBT is training location. Stone and Manion (1988) identified three options: (a) in-house locations, (b) use of hotels or conference centers, and (c) use of nearby technical schools or colleges. The project advisory committee added a fourth option, restaurant meeting rooms. The relative importance survey respondents assigned to each of these options is shown in Table 4.11. There were no strong differences evident for the entire sample. For the sub-sample of TI users, there was a marked preference for using school based facilities in lieu of restaurant meeting rooms.

Firm Size

Large firms in this study were more likely to prefer on-site training as compared to smaller firms. Large firms were less likely to prefer that the training be held at the nearby school or college. Large firms were also more likely to prefer restaurant meeting rooms, although the mean ranking for this factor was below the midpoint on the scale.

Firm Sites

Multiple site firms were more likely to prefer the use of nearby hotels as training sites when compared to single site firms.

Table 4.11

Preferences Regarding Location of Training

Location	All Vendors (N=175) $\bar{x}$*	(SD)	Rank	MTI Only (N=49) $\bar{x}$	(SD)	Rank
On-Site	2.20	(1.5)	1	2.24	(1.5)	2
Nearby Hotel	2.76	(1.3)	4	2.89	(1.3)	3
Nearby College/School	2.23	(1.2)	2	2.00	(1.1)	1
Restaurant Meeting Room	3.33	(1.2)	3	3.34	(1.0)	4

Note.
*Scale: 1 = most preferred
5 = least preferred

However, when the characteristics of the firm were considered in the analysis, a number of differences emerged (see Table 4.12).

Training Source

Firms that conducted all of their training locally were less likely to prefer the use of a hotel meeting room. They were also less likely to prefer the use of restaurant meeting rooms. These firms were more likely to prefer the use of a nearby school or college if they had used MTIs for training previously.

Firm Location

Firms in Greater Minnesota, that had used MTIs as vendors of IBT, were more likely to prefer the use of nearby hotels for training when compared to Twin Cities MTI user firms. Twin Cities firms, both those who had and had not used MTIs for training, were significantly less likely to prefer the use of restaurant meeting rooms than were firms located in Greater Minnesota.

Training Structure

Firms that had used MTIs as providers of IBT, and who had training specialists on-staff, were significantly more likely to prefer on-site offerings. However, firms without a formal training function that had used MTIs previously, were significantly more likely to prefer the use of nearby schools for training than were MTI users that had a formal training structure.

Table 4.12

Summary of Location Preferences by Firm Characteristics

Location		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
On Site	a	2.39	1.98**							--	--		
	b	--	--							1.23	2.46**		
Nearby Hotel	a			2.52	2.94*	2.49	3.13*	--	--				
	b			--	--	--	--	2.81	4.50**				
Nearby School/ College	a	2.09	2.43**			--	--			--	--		
	b	--	--			2.19	1.60**			2.63	1.84**		
Restaurant Meeting Room	a	3.49	3.11**			3.17	3.56*	3.17	3.89*				
	b	--	--			--	--	--	--				

Note.
Line a = Coefficients for all Firms
Line b = Coefficients for firms that have used TIs
*p ≤ .05
**p ≤ .10

Firm Type

There were no differences in training site preferences related to the respondent's type of business.

Two of the user focus groups discussed location issues. One of these groups was significantly split on the issue of offering courses on-campus or on-site. Those favoring on-campus courses cited lack of space and lack of equipment as their major considerations. Those who believed training should be offered on-site said that worker convenience and availability of equipment were important factors. It should be noted that, in this group, participants who wanted classes on-site were located farther away from the MTI than those wanting classes on-campus. The second group that discussed location issues had fewer concerns. The major concern for this group was that the training be provided within a reasonable distance from their facilities. They said it was important that their employees didn't have to travel far for training because they were not paid for attending classes. A participant from this group commented that her/his firm had used the MTI's facilities to reduce class interruptions. On a related issue, there was little consensus among participants regarding timing or length of classes. Factors seen as influencing these decisions were whether workers were required to attend courses, whether workers were compensated for attending courses, and the amount of time available for training.

There was little discussion on this topic among non-users. One participant commented that there were "no right answers" to location questions. (S)he added that level of customization, type of business, and number of employees to be trained were key considerations when determining location. Few of the participants commented on timing or length of classes.

Credit for Training

The question of whether or not to provide credit for training was not a high priority issue with most firms. Only 20.7% of the respondents indicated it was an important issue (see Table 4.13). Again, however, there were differences in how these items were scored based upon certain firm characteristics. Three firm-based differences emerged from the survey data. Firms with single operating sites were less likely to consider CEUs important. Firms with a formal training function, that had previously used MTIs, were more likely to consider CEUs important. Manufacturing firms were more likely to desire college credit for employee training. This statement was true for all firms in the study as well as for the sub-set of firms that had used MTIs for IBT (see Table 4.14).

Table 4.13

Credit for Employee Training

% for whom it was important (All Vendors): 20.7
% for whom it was important (TI Only): 22.9

Type of Credit	All Vendors (N=175) $\bar{x}$*	(SD)	MTI Only (N=49) $\bar{x}$	(SD)
College Credit	3.14	(1.6)	2.85	(1.7)
Continuing Education Credit	2.52	(1.5)	2.30	(1.6)

Note.
*Scale: 1 = very important
5 = not important

Focus group participants echoed the survey findings. Most users of MTI IBT programs indicated that the offering of credit for employee training was "not an issue." This was not the case, however, in health-related professions or other areas where state licensing and certification were needed. In these cases, the offering of credit was seen as very important. Participants of one focus group noted that they relied upon the MTI to ensure that content presented in courses needed for licensing met state standards.

It is interesting to note that many of the organizations seeking credit for licensing purposes appeared to be more credit oriented in general. These people seemed more inclined to seek courses offering their employees credit, regardless of the content area. While few of the firms represented in the focus groups reported their employees receiving any form of internal or external credit for employee training courses, some participants reported that credit was important. During one of the group interviews, participants said that granting of credit was important for "professional development." One of these participants noted that her/his firm did not reimburse employees for taking courses (other than workshops) that did not grant credit for work completed. Union representatives from a large paper processing firm noted that their firm gave employees certificates for completing training. One participant noted that credit was not necessary for the course (s)he described because most participants "had to be there."

Only one participant in a non-user focus group reported providing training courses that granted credit for completion. This participant represented a hospital that offered both

Table 4.14

Summary of Credit Preferences by Firm Characteristics

Type of Credit		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
College Credit	a											3.50	2.76**
	b											3.50	2.20**
C.E.U. Credit	a			2.13	2.74**					--	--		
	b			--	--					1.00	2.73**		

Note.
Line a = Coefficients for all firms
Line b = Coefficients for firms that have used TIs
*p ≤ .05
**p ≤ .10

college credit and continuing professional education credit for employee training.

Needs Assessment

In this study, 54% of the firms indicated that they prefer to do their own needs assessments for vendor-provided training. This is in contrast to the extension administrators' reported level of needs assessment activity. Extension administrators reported that they conducted most needs assessments when designing IBT (see Table 4.4).

Another 32% of the firms in the survey indicated that they prefer that the vendor conduct needs assessments. A surprising 13% indicated that it was not important to conduct needs assessments. These percentages are roughly equal for the entire sample and for the sub-sample of MTI users (see Table 4.15).

Table 4.15

Needs Assessment Preferences

N/A Agent	All Vendors (N=175) Percentage	MTI Only (N=49) Percentage
We do our own	54.1	59.2
Vendor should conduct	32.4	28.6
It is not important to conduct N/A	13.5	12.2

When asked to indicate the importance of various needs assessment activities, interviewing the respondent was considered the most important activity by both samples in this study. This method was followed closely by interviews with the supervisors of the intended trainees. Pretests and questionnaires were the lowest rated activities (see Table 4.16). The relative ranking was the same for both samples in the study.

As with other administrative considerations, there were firm-specific differences that emerged from these data (see Table 4.17).

Table 4.16

Needs Assessment Practices

N/A Activities	All Vendors (N=175) $\bar{x}$*	(SD)	Rank	MTI Only (N=49) $\bar{x}$	(SD)	Rank
Observe Workers	2.68	(1.5)	4	2.89	(1.4)	4
Interview Workers	2.33	(1.3)	3	2.26	(1.2)	3
Interview Supervisors	2.10	(1.2)	2	1.74	(.87)	2
Interview You	1.98	(1.3)	1	1.50	(.79)	1
Use Pretests	2.83	(1.4)	5	2.89	(1.3)	4
Use Questionnaires	2.84	(1.2)	6	2.94	(1.2)	6

Note.
*Scale: 1 = very important
5 = not important

Firm Size

Smaller firms were more likely to consider the use of pretests more important in conducting needs assessments than were larger firms.

Firm Sites

Single site firms that were MTI users were more likely to consider observing workers as more important than were multiple site firms. Single site firms were also more likely to consider the use of pretests more important than were multiple site firms. This was true for both samples in this study. Finally, single site firms were likely to consider the use of questionnaires more important than were multiple site firms.

Training Source

Firms that provided all training locally tended to consider worker observation a more important form of needs assessment activity than other firms. This was true for the entire sample as well as the sub-sample of MTI users. Pretests were considered more important by MTI users that provided all training locally than by MTI user firms that used both local and non-local training.

Training Structure

Firms that had used MTIs for IBT and did not have a formal training function were significantly more likely to consider

Table 4.17

Summary of the Perceived Importance of Needs Assessment Activities by Firm Characteristics

Activity		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
Observe Workers	a			--	--	2.97	2.37**						
	b			3.50	2.22**	3.44	2.33**						
Interview Workers	a												
	b												
Interview Supervisors	a									--	--		
	b									2.50	1.50**		
Interview You	a												
	b												
Pre-Tests	a	2.58	3.18**	3.33	2.50**	--	--					2.32	3.06*
	b	--	--	3.63	2.44*	3.44	2.33**					--	--
Questionnaires	a			3.06	2.53*								
	b			--	--								

Note.
Line a = Coefficients for all firms
Line b = Coefficients for firms that have used TIs
*p ≤ .05
**p ≤ .10

interviewing the employees' supervisor more important in needs assessment than firms with a formal training function.

Firm Type

Finally, service firms were more likely to consider the use of pretests more important than did manufacturing firms.

Focus group participants reported mixed use of needs assessment processes and specific needs assessment techniques. Few users of MTI IBT programs appeared to fully understand the concept of training needs analysis. While nearly all participants in the user focus groups discussed the events leading up to delivery of training, fewer than half touched upon activities related to needs analysis. The majority of these activities were conducted by individuals inside the organization.

The most frequently mentioned internal needs analysis technique was meetings and discussions with employees, supervisors, or personnel/training administrators. Observation was the second most often mentioned technique. Three participants reported that their training needs analyses were conducted by an external agency. In two of these cases (both health or health-related organizations), training was dictated by the state, which, it was presumed, had some basis for the required training. In the third case, a training needs analysis was conducted by the TI prior to providing training.

Few participants reported following a formalized process for needs analysis. In most of these cases, management identified a general need/desire to provide training, and then conducted a needs analysis to determine what topics, types, or amounts of training would best fit their firm's needs.

Most participants in the non-user groups believed that organizations should conduct their own needs analyses. One group summarized their ideas on the topic by saying that internal personnel (a) are more familiar with processes and procedures, (b) understand management's desires better, and (c) have closer relationships with employees. Despite this fact, fewer than half the participants reported having conducted a formal needs analysis before offering training. Of these participants, many reported using informal observation to determine training needs. Participants from one focus group reported that they wanted someone external to their organizations to conduct needs analysis. Two of these participants were from very small businesses. The other two were from a medical clinic. It should be noted that most of the firms that did not conduct needs assessments also did not conduct course evaluations. The participants who were training or personnel professionals were more inclined to indicate they conducted needs analysis and evaluation activities.

Each administrator commented on the types of needs analysis activities they had conducted. Two said that most firms already knew what type of training they wanted before they contacted the MTI. These two administrators reported that they used surveys, interviews, meetings, and literature reviews to determine specific content needs. One noted that all needs analysis situations were unique and so each required unique techniques. The other indicated a lack of confidence in conducting needs analyses in technical areas and did not market this service. This administrator said that the state should provide needs analysis specialists.

The third administrator used a marketing approach to needs analysis. This administrator stated that her/his method was to "identify what [the MTI did] best, and find out where the potential is to do it." Courses at this MTI were developed in response to perceived needs and available resources. Content development procedures were more systematic.

The administrators at a fourth site said that personal contact was the best method for needs analysis. They said that administrators should meet with management (often several times), tour facilities, and review business plans and goals. They commented that when designing training, administrators must consider "both what the business needs and what management wants." They said that it is very helpful to have an understanding of the firm. They added that surveys were too general to be of much use in most situations, and that advisory committees did not provide guidance on specific training issues.

Instructor Characteristics

Five instructor dimensions were identified in the literature as important in the delivery of IBT (Stone & Manion, 1988). These included academic qualifications, related experience in the business or industry where the training was to be delivered, knowledge of the industry, amount of teaching experience, and knowledge of adult education.

Overall, the most important instructor dimension identified by survey participants was the amount of experience the individual had in the business or industry where the training was to be delivered (see Table 4.18). This was followed closely by overall knowledge of the industry and experience as a trainer. The least important characteristics, although still considered important, were academic qualifications and knowledge of adult education. The pattern was similar for the entire sample and the sub-sample of MTI users except for the slight difference in rating given to training experience and knowledge of the industry.

Table 4.18

Instructor Characteristics

Characteristic	All Vendors (N=175) $\bar{x}$*	(SD)	Rank	MTI Only (N=49) $\bar{x}$	(SD)	Rank
Academic Qualifications	2.28	(1.2)	4	2.31	(1.1)	4
Business/Industry Experience	1.43	(.70)	1	1.37	(.71)	1
Knowledge of Industry	1.51	(.86)	2	1.77	(1.0)	3
Training Experience	1.59	(.74)	3	1.44	(.65)	2
Knowledge of Adult Education	2.54	(1.2)	5	2.45	(1.3)	5

Note.
*Scale: 1 = very important
5 = not important

Several firm specific differences did emerge in the analysis. Table 4.19 summarizes these differences.

Firm Size

Larger firms in this study were more inclined to afford academic qualifications a higher importance than were smaller firms. This may be explained by the presence of more formal training functions (often staffed by individuals with advanced degrees) in larger firms.

Firm Location

Firms in the Twin Cities differed from firms in Greater Minnesota on two dimensions. Twin Cities firms were more likely to value academic credentials and knowledge of industry than were firms in Greater Minnesota.

Training Structure

Firms that had a formal training structure differed from those without formal training structures in two ways. Firms with a formal training structure indicated that the academic credentials of the instructor were more important than did firms without a formal training structure. Firms that had used MTIs for employee training and had a formal training structure tended to consider the instructor's knowledge of the industry more important than those MTI users without such a formal training structure.

Table 4.19

Summary of Perceived Importance of Selected Instructor Characteristic

Characteristic		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
Academic Qualifications	a	2.43	2.10**					2.43	1.88*	1.81	2.42*		
	b	--	--					--	--	--	--		
Business/Industry Experience	a											--	--
	b											1.65	1.16*
Knowledge of Industry	a							1.54	1.18*	--	--		
	b							--	--	1.75	2.25**		
Training Experience	a											--	--
	b											1.24	1.62*
Knowledge of Adult Education	a											--	--
	b											2.07	2.72**

Note.
Line a = Coefficients for all firms
Line b = Coefficients for firms that have used TIs
*$p \leq .05$
**$p \leq .10$

Firm Type

Service firms that used MTIs for IBT differed from manufacturing firms that used MTIs for IBT on three dimensions. The service firms tended to place less importance on business and industry experience, but more importance on training experience and knowledge of adult education.

During each of the focus group interviews participants were asked to describe the instructors that facilitated the course they identified. Participants were then asked to describe characteristics of a good instructor.

Participants in the user focus groups discussed the importance of instructors at length and reported to perceive instructors as critical elements in effective training programs. While each of the focus groups used different terms to describe desirable instructor characteristics, solid content knowledge, related work experience, and excellent teaching skills were consistent themes. One participant noted that instructors needed "experience in the area and [must have] reputation and credentials." The ideal mix of academic credentials and practical work experience was seen as changing depending upon the type of course taught. One participant noted that (s)he saw no difference between instructors from the MTI and external instructors brought in to teach a specific course. Other participants stated that they assumed "all teachers were qualified" and were not concerned with evaluating credentials. The instructors who received highest marks were those who were most flexible and willing to tailor courses to meet student needs.

Participants in the non-user focus groups appeared to agree that effective instructors were a key element of effective training. The groups were divided, however, on what characteristics made up an effective instructor. Two groups said that content knowledge was much more important than teaching skills. One of these groups commented that instructors needed to have experience in the field. A third group saw content knowledge and teaching skills as equally important. Within this group one participant commented that her/his firm had screened instructors as well as content before deciding to purchase the training. Each of the participants in this group noted that employee training sessions should be more active and use "real-world" learning experiences. Two participants from this group noted that it was important that the instructor be familiar with the firm. This idea was echoed by participants in the fourth focus group. These people said that instructor credibility was as important as content. The manufacturing representatives within this group saw experience as building credibility. The health care representative said that credentials added credibility.

All administrators reported using both internal and external instructors for IBT. Only three described desirable instructor characteristics. Two described a need for effective instructors to possess both effective teaching skills and content knowledge. One of these noted that (s)he preferred to use business people (with ability to instruct) whenever possible. Administrators at one location said that fifteen to twenty percent of their IBT instructors were MTI staff members. They commented that development and delivery skills were important. They also said that an instructor's personal characteristics should be carefully matched to the training situation. They noted that desirable instructor characteristics should be identified during needs analysis. One of these administrators questioned older, more established (MTI) instructors' abilities to adapt courses to fit specific businesses' needs.

Evaluation of Training

Respondents in this study generally conducted their own evaluation of training (see Table 4.20). Respondents who were MTI

Table 4.20

Sources of Training Evaluation

Source of Evaluation	All Vendors Responding Percentage	MTI Only Responding Percentage
Vendor	14.9	23.9
Instructor	14.3	8.7
Internal Staff	69.6	67.4

users tended to rely more on vendors, and somewhat less on instructors to conduct evaluations, than did the entire sample.

For the full sample, evaluating the skills and knowledge acquired and improvement in job performance were the most often evaluated aspects of training. However, MTI users viewed these slightly differently. They tended to evaluate participant satisfaction and course content most often (see Table 4.21). While these differences in emphasis were found in the data, it should be noted that all foci listed were usually evaluated with the exception of physical setting.

Table 4.21

Evaluation of Training

Focus of Evaluation	All Vendors (N=175) $\bar{X}$*	(SD)	Rank	MTI Only (N=49) $\bar{X}$	(SD)	Rank
Skills/Knowledge Acquired	1.82	(1.00)	1	1.88	(1.00)	3
Improvement in Job Performance	1.83	(.95)	2	2.06	(1.10)	5
Instructor Effectiveness	2.10	(1.10)	4	1.92	(.96)	4
Course Content	1.90	(.95)	3	1.83	(1.10)	2
Physical Setting	3.14	(1.18)	5	3.02	(1.20)	6
Participant Satisfaction	1.90	(.93)	3	1.70	(.83)	1

Note.
*Scale: 1 = always evaluate
5 = rarely evaluate

There were three evaluation foci which were related to a specific firm characteristic (see Table 4.22).

Training Source

For both the entire sample and the sub-sample of MTI users, firms that used only local training tended to evaluate job performance improvement more often than did firms that used non-local sources for employee training. However, the local training oriented firms tended to evaluate physical setting less often than other firms.

Firm Location

Firms in Greater Minnesota tended to evaluate skills/knowledge acquired more often than did firms in the Twin Cities area.

Training Structure

Firms that had used MTIs for employee training and had formal training functions tended to evaluate physical setting more often than did TI users without formal training structures.

There were no differences in evaluation activities that were associated with the other firm characteristics.

Evaluation did not appear to be a major concern of the focus group participants. When asked about evaluation, past MTI IBT users often intermixed course and participant evaluation processes.

Table 4.22

Summary of Evaluation Activities by Firm Characteristic

Evaluation Focus		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
Job Performance Improvement	a					2.00	1.60*						
	b					2.35	1.40*						
Skills/Knowledge Acquired	a							1.72	2.13*				
	b							--	--				
Instructor Effectiveness	a												
	b												
Course Content	a												
	b												
Physical Setting	a					3.00	3.32**			--	--		
	b					--	--			2.33	3.19**		
Participant Satisfaction	a												
	b												

Note.
Line a = Coefficients for all firms
Line b = Coefficients for firms that have used TIs
*p ≤ .05
**p ≤ .10

Fewer than half of the participants reported using any type of course or participant evaluation. Of those who conducted evaluations, most used some type of formal technique. The most common technique reported was end-of-course written evaluations ("smile sheets"). Several participants noted that they used employee observation to determine value of training. A significant portion of the participants who reported conducting evaluation identified participant rather than course evaluation techniques. One focus group expressed the opinion that the firm should evaluate the course, while the instructor, TI, or other agency should evaluate the learner. One participant criticized the MTI because (s)he thought it had "shied" away from designing a learner evaluation for her/his course.

A greater portion of non-user focus group participants reported having experience with training evaluation. The majority of these participants reported using short-term written evaluations to determine the value of training courses. Only four participants specifically noted having used long-term follow-up to determine training effectiveness. Most participants discussed course versus participant evaluations. In regard to workshops her/his employees had attended, one participant noted, "We get what we can out of them, and we're hopin' that some of this sticks in their mind."

All administrators interviewed reported using end-of-course surveys to evaluate training. One also reported using in-class observations to insure training quality. Another commented that (s)he used informal follow-up interviews to determine training results. This participant added that periodic testing was used in some courses to evaluate participant progress.

Funding

Respondents in this survey indicated that most firms pay for job-related training (see Table 4.23), and some firms pay for any training regardless of job-relatedness. Within the few firms not covering training costs, employees were expected to pay training expenses. There were no differences in these percentages that were associated with specific firm characteristics.

Only three of the four user focus groups specifically discussed funding issues. Their comments generally followed the survey findings. In all but two cases, the company paid all training costs. In one case, nursing aids were required to pay for a portion of their training. The hospital subsidized the training to ensure that the MTI would offer a special course for hospital employees. In the second case, training costs were paid for with a grant.

All participants in the non-user focus groups reported that their company did or would pay for the costs of training. One

Table 4.23

Who Pays for Vendor Provided Training

Source	All Vendors (N=175) Percentage	MTI Only (N=49) Percentage
Job-Related Company Pays All	84.0	89.8
Job-Related Company Pays Part	9.5	4.1
Company Pays All Regardless of Job-Relatedness	2.4	2.0
Employee Pays All Regardless of Job-Relatedness	2.4	4.1
Other Arrangements	1.8	0.0

participant qualified this statement by adding that her/his employees were required to pass quarterly evaluations in order to continue in the training program.

The interviews with the extension administrators elicited examples of funding exceptions they had encountered. One administrator said that one of the courses (s)he developed was offered to a Wisconsin firm. Because of this the MTI had to be very careful that all training costs were identified and charged to the firm. Another administrator added that in another course where an external consultant was used to develop and deliver the training, the MTI billed the business at a rate of 110 percent of the consultant's fee. In essence, this MTI was functioning as a "broker" of training (Stone & Manion, 1988, p. 19).

Selection Criteria for External Vendors

A related question was posed to the survey recipients regarding the importance of criteria the literature had shown to influence selection of external employee training vendors. These criteria included content of the program, skills to be developed by the training, qualifications of the instructor, timeliness of delivery, cost of the program, location of the training, and vendor reputation. The importance ratings are shown in Table 4.24. All criteria were considered at least "somewhat important" or higher. These data indicate that program cost, along with location of the training, are considered the least important on the list of criteria. This is true for the entire sample and for the sub-sample of MTI users. The content taught and the skills developed are the two most important dimensions for both groups in selecting a vendor to provide employee training.

Table 4.24

Factors Important in Selecting External Vendors

Factor	All Vendors (N=175) $\bar{x}$*	(SD)	Rank	TI Only (N=49) $\bar{x}$	(SD)	Rank
Content Taught	1.26	(.57)	1	1.29	(.71)	2
Skills Developed	1.39	(.54)	2	1.23	(.50)	1
Qualifications of Instructor	1.79	(.88)	3	1.82	(.88)	3
Timeliness of Delivery	2.06	(.88)	5	2.23	(1.00)	6
Cost of Program	2.20	(1.04)	6	2.17	(1.20)	5
Location of Training	2.23	(1.06)	7	2.17	(1.10)	5
Reputation of Vendor	1.94	(.95)	4	2.00	(.97)	4

Note. *Scale: 1 = very important
5 = not important

Some differences between criteria for selecting external vendors did emerge related to firm characteristics (see Table 4.25).

Firm Size

Smaller firms (those with fewer than 50 employees) placed slightly more importance on cost than did larger firms.

Firm Sites

Firms that were single site locations tended to place less importance on the skills developed and less importance on where the training was to be held than did firms that had multiple sites.

Training Source

For firms that were past users of MTI IBT programs and that relied on local training resources, the location of the training was significantly less important an issue in selecting a vendor than for those firms that had used MTIs in the past but used local and non-local resources for training.

The reputation of the vendor supplying the training was slightly more important to firms that relied on local training resources than for firms using both local and non-local resources.

Table 4.25

Summary of Perceived Importance of Selection Factors for Vendors of IBT

Factor		Firm Size		Firm Sites		Training Source		Location		Training Structure		Firm Type	
		Sm	Lg	Mult	Sing	Other	Local	GM	TC	T	NT	Ser	Mfg
Content Taught	a												
	b												
Skills Developed	a			1.31	1.46**							1.64	1.96*
	b			--	--							--	--
Qualifications of Instructor	a												
	b												
Timeliness of Delivery	a							2.15	1.76*				
	b							2.30	1.00**				
Cost	a	2.08	2.36**							2.51	2.13**	2.00	2.36*
	b	--	--							--	--	--	--
Location of Training	a			2.05	2.37**	--	--					2.05	2.37**
	b			--	--	1.91	2.79*					--	--
Reputation of Vendor	a					2.05	1.79**						
	b					--	--						

Note.
Line a = Coefficients for all firms
Line b = Coefficients for firms that have used TIs
*$p \leq .05$
**$p \leq .10$

Firm Location

Firms in the Twin Cities area, both the entire sample and the sub-sample of MTI users, placed more importance on the timeliness of delivery than did firms in Greater Minnesota.

Training Structure

Firms without a formal training structure tended to place a higher value on the cost of a training program than did firms with a formal training structure.

Firm Type

Service firms were significantly more likely to consider the specific skills developed in selecting a vendor than were manufacturing firms. Service firms were also more likely to consider the cost of the training and the location of the training than were manufacturing firms.

Liaison Role

One dimension of the communication planning and administrative factor provided insight into businesses' attitudes toward IBT vendor/client liaison roles. Some differences between preference for availability of vendor representatives did emerge for two firm characteristics. Firms with multiple operating sites preferred the availability of a vendor representative more than firms with only one operating site. This was true for the entire sample and for the sub-sample of past MTI users. Firms with a formal training structure, that had used MTIs in the past, were more likely to want an available vendor representative.

Participants in one user focus group illustrated how important it was to have a good working relationship with the MTI IBT administrator. They reported that, because of rapid turnover within the position, they had been unable to work effectively with the local administrator. Because of this situation they went to a distant MTI to obtain the assistance they needed. This MTI, while providing some training, was seen as too far away to be used for all the firm's needs. Many non-users commented that they would like a contact person to call regarding training needs and concerns. One administrator commented that the state should fund positions designed to identify community needs and sell IBT programs.

Linkage

Several focus groups discussed the need for MTIs to provide courses appealing to many types of businesses. These courses

could be developed by one MTI and delivered by other MTIs. Three of the MTI administrators interviewed individually at the focus group sites commented on uses of/need for some type of resource sharing system. One administrator noted that the state should provide a centralized bank of potential instructors. This administrator added that the state should provide aid in needs assessment activities. Another administrator commented on the scarcity of content-development resources. A third administrator described a course facilitated by instructors from two MTIs.

Summary of Administrative and Planning Factors and Firm Characteristics

Six firm characteristics were identified as having the potential to affect the design and delivery of industry based training. These six included (a) the size of the firm, (b) the number of sites constituting the firm, (c) the use of non-local training resources, (d) the geographic location of the firm, (e) the presence of a formal training structure within the firm, and (f) whether the firm was in the service or manufacturing sector.

In contrast to large firms, small firms (defined for this study as having 50 or fewer employees), were more likely to prefer the use of pretests during needs assessment. They were less likely to consider the academic qualifications of the instructor to be important. They were less likely to prefer that the training be held on their own site or in a restaurant meeting room, but more likely to prefer the use of a nearby school or college facility. They were less likely to prefer catalogs and samples of training materials. Small firms that had previously used MTIs were also less likely to prefer catalogs and periodic visits from vendor representatives. Finally, small firms were more likely than large firms to pay attention to the cost of the training program.

Firms that were single site operations were more likely to prefer the use of pretests and questionnaires as means of needs assessments than were firms that had multiple locations. They were also less likely to prefer the use of a nearby hotel meeting facility. Furthermore, they were less likely to consider the availability of continuing education credit (CEU) to be important. Single site firms were slightly less likely to prefer having a vendor representative available. This finding held for the sub-sample of previous MTI users. Single site firms focused less on specific skills developed by a training program and the location of the training when selecting a vendor. In addition, previous users were more likely to prefer the use of worker observation in needs assessment.

Businesses that used local and non-local resources for training were less likely to consider worker observation an important needs assessment activity than were businesses that

relied solely on local training resources. They were more likely to prefer the use of local hotel meeting rooms or restaurant meeting rooms. In evaluating programs, these firms would be less likely to evaluate job performance improvement, but more likely to evaluate the physical setting. In selecting a vendor, this type of firm was less likely to consider the vendor reputation.

In addition, firms that used both local and non-local resources for training, and had previously used MTIs for IBT, were less likely to consider the use of observation and pretests during needs assessment. Also, these firms were less likely to prefer the use of nearby school or college facilities for training. This type of firm was also more inclined to value the availability of training samples and to consider location of the training in selecting a vendor.

While there were no geographic differences found in needs assessment preferences, Twin Cities firms did tend to place more importance on the academic qualifications of training instructors and the instructor's knowledge of the industry. Greater Minnesota firms were more likely to prefer training to take place in a restaurant meeting room. Greater Minnesota firms were also more likely to evaluate the skills and knowledge obtained as a result of the training. Non-metro firms tended to prefer the availability of training samples and were less inclined to be concerned about the timeliness of training delivery when selecting a training vendor.

Previous users of MTI employee training located in Greater Minnesota generally preferred hotel meeting rooms more than similar firms located in the Twin Cities. Twin Cities firms that were MTI users were more likely to consider timeliness of delivery than were similar Greater Minnesota firms.

The presence of a formal training structure in firms that had previously used MTIs was associated with a number of administrative planning factors. Such firms, in contrast to MTI users without formal training structures, were less likely to prefer interviews with supervisors as a needs assessment tool. They were more likely to consider the instructor's knowledge of the industry to be important. The firms were also more likely to prefer that training be conducted on their site and not in a nearby school or college. Continuing education credit was seen as more important by this type of firm. Past MTI IBT users with internal training functions would be more likely to evaluate the physical setting at the conclusion of the training. These firms also like to have a vendor representative available.

For all firms in the study that had a formal training structure in place, the academic qualifications of the instructor were more important than for those firms without formal training

structures. Firms with formal training structures were also less likely to consider cost in selecting a training vendor.

Service firms in this study were more likely to prefer the use of pretests as a needs assessment tool in contrast to manufacturing firms. They were less likely to desire college credit attached to any training program. In communicating with service firms, catalogs were less preferred than with manufacturing firms. In selecting vendors for training, service firms were more likely to focus on the skills developed by the training, the cost of the training, and the location of the training.

For service firms that had previously used MTIs for employee training, it was found that training samples were more preferred than with manufacturing firms. The availability of academic credit was less important with this group. When service firms consider instructors, business and industry experience was less important than it was to manufacturing firms which had used MTIs. Service firms saw previous training experience and knowledge of adult education as more important than did manufacturing firms.

The Relationship Between Administrative and Planning Factors and IBT Program Models

The third objective of this study was to examine the relationship between the specific administrative planning factors identified for this study and the nine IBT models conceptualized by Stone and Manion (1988).

Two sources of data were used to investigate this objective: the survey of businesses and the focus group interviews. For the quantitative analysis, firms were classified as low, moderate, or high users of each of the nine IBT models. These relationships were tested using a one-way analysis of variance (ANOVA). In a number of instances, the one-way ANOVA was significant but a post hoc analysis using the Scheffe' test did not show differences between groups to be significant at $p \leq .05$. This may be an artifact of the number of cells with small N (see Table 4.6). This suggests that while the variance between all three groups is greater than the variance within the groups (the F-test), the individual contrasts between group variances were insufficient to be considered significant. Analysis of coefficients in these instances should be considered less definitive than where the Scheffe' post hoc analysis showed significant differences between specific groups.

Standardized General Education Model

Five administrative planning factors were shown to be related to standardized general education (SGE) model of IBT (see Table 4.26).

Table 4.26

A Summary of Planning Factors Related to IBT Models

Standardized General Education Model

Planning Factor	Low Users	Moderate Users	High Users
Communications			
Brochure*	1.80(a)***	1.33(a)	3.75(b)
Flyer*	1.73	3.33	1.25
Location			
Hotel*	2.86(a)	2.67	4.75(b)
Needs Assessment			
Observation*	1.60(a)	4.00(b)	4.00(b)
Interview*	1.40(a)	2.33	4.00(b)
Instructor			
Knowledge of Industry**	1.50	2.67	1.75
Evaluation			
Physical Facilities**	3.60	2.33	4.25

Note.
*Model is significant ($p \leq .05$)
**Model is significant ($p \leq .10$)
***Coefficients with different letters in () indicate differences significantly greater than 0 in Scheffe' post hoc analysis ($p \leq .05$)

Communications

Low and moderate users of the SGE model were significantly more likely to prefer information provided via a brochure than were high users. There were differences between high and moderate users in preference for flyers on specific courses, but the Scheffe' post hoc contrast failed to indicate which groups were significantly different.

Location

Low users of SGE were more likely to prefer the use of hotel meeting rooms as training sites than were high users.

Needs Assessment

Moderate and high users of SGE were less likely to prefer the use of observation as a needs assessment strategy than were low users. They were also less likely to prefer the use of interviews in needs assessments than were low users.

Instructor Characteristics

There were differences between the three levels of users of SGE on rating of the importance of instructor's knowledge of industry. However, the Scheffe' post hoc analysis failed to show significant differences between any two groups.

Evaluation

While there were differences between the three levels of use of SGE on the frequency of evaluation of physical facilities, again, the Scheffe' post hoc analysis failed to show significant differences between groups.

Standardized Generic Occupational Model

Only one planning factor proved to differentiate low, moderate, and high users of the standardized generic occupational (SGO) model of IBT. Low users of SGO were significantly more likely to consider timeliness of delivery of training in selecting an external vendor than were high users (see Table 4.27).

Standardized Job Specific Model

Four planning factors were associated with the standardized job specific model (SJS) of IBT (see Table 4.28).

Communication

Low and moderate users of SJS tended to prefer having training samples more so than did high users, although the difference was not found to be significant based upon the Scheffe' post hoc analysis.

Location

A preference for school based training was expressed by high users of SJS training.

Table 4.27

A Summary of Planning Factors Related to IBT Models

Standardized Generic Occupational Model

Planning Factor	Low Users	Moderate Users	High Users
Selection			
Timeliness*	1.82(a)***	2.25	3.40(b)

Note.
*Model is significant ($p \leq .05$)
***Coefficients with different letters in () indicate differences significantly greater than 0 in Scheffe' post hoc analysis ($p \leq .05$)

Credit

Low users of SJS training expressed a higher preference for the availability of continuing education unit (CEU) credits than did moderate or high users.

Evaluation

Low users of SJS were more inclined to evaluate specific skills resulting from training than were moderate users. However, high users were more inclined to evaluate job performance resulting from training than moderate users.

Personalized General Education Model

Two planning factors were associated with the use of personalized general education (PGE) training. There were no firms identified as high users of PGE (see Table 4.29).

Instructor Characteristics

Low users of PGE indicated that an instructor's knowledge of the industry was more important than did moderate users.

Selection of Vendors

Two factors emerged differentiating low and moderate users of PGE. Low users were more likely to consider the cost of a program and the content of a program in deciding on an external vendor than were moderate users.

Table 4.28

A Summary of Planning Factors Related to IBT Models

Standardized Job Specific Model

Planning Factor	Low Users	Moderate Users	High Users
Communication			
Samples Available*	2.56	2.25	3.63
Location			
School**	2.53	1.78	1.43
Credit			
CEU Availability**	1.67	3.67	3.00
Evaluation			
Evaluate Skills**	1.72	2.63	2.00
Evaluate Job Performance**	1.72	2.44	1.63

Note.
*Model is significant ($p \leq .05$)
**Model is significant ($p \leq .10$)

Personalized Generic Occupational Model

Two planning factors were associated with the use of personalized generic occupational (PGO) training (see Table 4.30).

Communication

Moderate users of PGO were more inclined to prefer training samples than either low or high users of this model of IBT.

Selection

The vendor reputation was significantly more important to moderate and high users of PGO than to low users when considering a vendor for providing training.

Table 4.29

A Summary of Planning Factors Related to IBT Models

Personalized General Education Model

Planning Factor	Low Users	Moderate Users	High Users
Instructor			
Knowledge of Industry*	1.27	3.00	--
Selection			
Cost of Program**	1.91	4.00	--
Content of Program*	1.08	2.00	--

Note.
*Model is significant ($p \leq .05$)
**Model is significant ($p \leq .10$)

Table 4.30

A Summary of Planning Factors Related to IBT Models

Personalized Generic Occupational Model

Planning Factor	Low Users	Moderate Users	High Users
Communication			
Samples**	2.88	1.80	5.00
Selection			
Reputation of Vendor*	2.63(a)***	1.50(b)	1.50(b)

Note.
*Model is significant ($p \leq .05$)
**Model is significant ($p \leq .10$)
***Coefficients with different letters in () indicate differences significantly greater than 0 in Scheffe' post hoc analysis ($p \leq .05$)

Personalized Job Specific Model

Aspects of three planning factors proved to be associated with the use of personalized job specific (PJS) industry based training (see Table 4.31).

Table 4.31

A Summary of Planning Factors Related to IBT Models

Personalized Job Specific Model

Planning Factor	Low Users	Moderate Users	High Users
Communication			
Catalog*	2.50	2.00(a)***	5.00(b)
Samples*	2.00	1.00(a)	5.00(b)
Evaluation			
Instructor Effectiveness**	2.14	2.00	4.00
Course Content**	1.71	1.86	3.50
Selection			
Content**	1.14	1.57	1.00
Instructor Qualifications**	1.50	2.29	2.00

Note.
*Model is significant ($p \leq .05$)
**Model is significant ($p \leq .10$)
***Coefficients with different letters in () indicate differences significantly greater than 0 in Scheffe' post hoc analysis ($p \leq .05$)

Communication

Moderate users of PJS were more likely to prefer catalogs and samples of training then were high users of this form of IBT.

Evaluation

Low and moderate users of PJS were more inclined to indicate that they evaluated the instructor's effectiveness and course content than were high users.

Selection

While all respondents rated program content least important, high users of PJS were more inclined to indicate that they considered program content more important than low or moderate users. Low users of PJS were more inclined to consider the instructor's qualifications when selecting training vendors than were moderate or high users.

Customized General Education Model

The only factor differentiating usage levels for the customized general education model (CGE) of industry based training was one vendor selection consideration (see Table 4.32). While all CGE users rated skills developed as an important vendor selection consideration, low users were significantly more likely to weigh these skills than were moderate or high users.

Table 4.32

A Summary of Planning Factors Related to IBT Models

Customized General Education Model

Planning Factor	Low Users	Moderate Users	High Users
Selection			
Skills Developed*	1.10(a)***	2.00(b)	2.00(b)

Note.
*Model is significant ($p \leq .05$)
***Coefficients with different letters in () indicate differences significantly greater than 0 in Scheffe' post hoc analysis ($p \leq .05$)

Customized Generic Occupational Model

There were no differences found differentiating low, moderate, and high users of customized generic occupation (CGE) training on any of the planning factors used in this study.

Customized Job Specific Model

Four planning factors were shown to be related to the levels of use of the customized job specific (CJS) model of industry based training (see Table 4.33).

Table 4.33

A Summary of Planning Factors Related to IBT Models

Customized Job Specific Model

Planning Factor	Low Users	Moderate Users	High Users
Communication			
Catalog*	2.92	1.67	1.33
Location			
Hotel**	3.38	2.33	4.00
Needs Assessment			
Questionnaires*	2.00	3.50	--
Selection			
Location*	2.77(a)***	1.67(b)	2.00
Vendors Reputation**	2.00	1.67	3.00

Note.
*Model is significant ($p \leq .05$)
**Model is significant ($p \leq .10$)
***Coefficients with different letters in () indicate differences significantly greater than 0 in Scheffe' post hoc analysis ($p \leq .05$)

Communication

The higher the use of CJS training, the more inclined the respondent was to indicate a preference for catalogs advertising available training.

Location

Moderate users were more inclined to prefer hotels for CJS training than were high or low users.

Needs Assessments

Questionnaires to collect needs assessment information were more likely to be preferred by low users of CJS than by moderate users.

Selection

Moderate users were significantly more likely to consider the location of CJS training than were low users. They were also more inclined to consider vendor reputation than were high users.

Participant responses from the focus groups were reviewed to determine if administrative planning factors such as funding, training location, offering of credit, communication techniques, instructor characteristics, and type of evaluation used could be related to specific IBT models. Needs analysis activities were also analyzed to determine if there was a relationship between level of needs analysis and IBT model type. Very few relationships could be identified.

Based upon the descriptions provided by users of MTI industry based training programs, only three administrative planning factors appeared to be related to program model type. The first factor was communication techniques. Many more participants who described generic occupational courses (as opposed to courses covering general education topics) reported that the TI actively promoted IBT services. This promotion took the form of brochures/mailings and personal contacts.

The second factor related to IBT model type was evaluation. Participant descriptions indicated that personalized programs were more likely to use some form of formal course evaluation. These evaluations were most commonly post-training participant questionnaires.

The third factor effected by program model type was needs analysis. Based upon participant descriptions, personalized programs were more likely to be based on some type of needs analysis than were standardized programs. All participants who

reported using formal needs assessment techniques described personalized training programs.

Among the non-users, location was the only factor found to be related to an IBT model. Participants reported that personalized and customized programs were more often delivered on-site than were standardized offerings.

Summary of Administrative and Planning Factors and IBT Model Type

There were some differences found regarding dimensions of administrative and planning factors that were a function of low, moderate, or high use of the nine IBT models used in this study. The most consistent finding related to aspects of communication and vendor selection criteria. One or both of these factors was related in some way to each of the nine models. Both of these factors are related to marketing. Communication techniques as identified in this study related to the ways an IBT provider might promote a program. The vendor selection criteria might also be considered "purchasing" behavior on the part of a consumer.

One or more dimensions of evaluation were found to be significantly different between levels of use for the SGE, SJS, and PJS models. Location of the training was a significant factor in the SGE, SJS, and CJS models. Dimensions of needs assessments proved to differentiate the SGE and CJS models. Aspects of instructor characteristics were found to be important in the SGE and PGE models. Credit was a factor in only the SJS model.

Barriers to the Delivery of MTI Provided IBT

The final objective of this study was to identify barriers to participating in, or expansion of, IBT provided by Minnesota's Technical Institutes. While a list of barriers can be imputed from the survey data, the primary source of information in this objective was obtained from the focus group interviews and individual interviews with extension directors.

Both users and non-users reported positive images of the overall MTI system. Despite this fact, focus group participants identified seven common themes regarding MTI IBT use and training vendor selection criteria.

The first theme users and non-users agreed upon was the availability of needed courses. Both categories of participants indicated that MTIs did not provide the types of courses their communities needed. As one participant put it, "Everyone will use the facility if they offer the things that we need." When asked to identify the types of courses they wanted MTIs to

provide, participants described both technical and interpersonal skill courses. One participant added that course prerequisites had hampered her/his use of existing courses.

The second major theme relates directly to the first. Both users and non-users exhibited interest in courses designed to meet the needs of several organizations as opposed to just one firm. Users commented that they were often frustrated when courses were canceled due to low enrollment. They recommended that MTIs notify employers of minimum enrollments and potential class participants. This system, they said, would allow employers to "recruit" class participants from other organizations. One user group said that MTIs should conduct business training surveys and use the data to plan and promote courses.

Non-users suggested that MTIs provide general courses that would appeal to a variety of employers. They also suggested that MTIs conduct community worker surveys to determine what training was desired. The idea that emerged was that MTIs offer personalized daytime courses and standardized nighttime courses. One idea that emerged was that MTIs should develop standardized curriculums for specific industries. Businesses within these industries could select courses from the curriculums as needed. (S)he also suggested that many courses could be developed in "general" formats and personalized for specific businesses. Another participant suggested that MTIs lease out facilities to companies so that the firms could conduct their own training.

Users and non-users alike reported problems accessing MTI IBT programs. Participants in one user group reported having a difficult time working with the local MTI administrator. They commented that turnover in the position was too high, and added that a neighboring MTI had been much more helpful. This MTI was seen as too far away to be used for all their organization's training needs. Many non-users reported that they had been unaware of the existence of MTI customized training services. Many also noted that TIs should provide centralized contact people for businesses to call with questions and requests.

The fourth common theme derived from the focus groups was concerns about instructor/institution expertise. Users questioned how "state-of-the-art" MTI's facilities and instructors were. MTIs were seen as "less than community colleges." Several non-users reported that they believed their people had more occupational expertise than did most MTI instructors. One participant stated that her/his people were generally more knowledgeable about their occupation than were MTI staff members. Another said the training her/his people needed was too job specific for the MTIs to be of help.

The fifth theme centered around training experience and reputation. Users reported that they had chosen the MTI to provide training because they knew it already offered a program similar to the desired training. Several participants noted that referrals from other businesses were important. When non-users were asked about the factors most important in choosing a training vendor, familiarity with the vendor or program was seen as most important. The vendor's willingness to adapt to the client's needs and vendor experience with the topic were also seen as very important.

The sixth common theme between users and non-users was training location. While no group could offer definitive answers about training location, both users and non-users said that location was a major criteria in selecting a training vendor. One past user saw the local MTI as "the only place [in the area] that teaches."

The seventh common theme between users and non-users was cost. Both users and non-users commented that cost was a significant criteria when choosing training vendors.

In addition to the seven factors users and non-users had in common, each group provided unique responses. Users commented that content was a significant vendor selection criteria. One added that free training provided by vendors would keep him from using the MTI system for employee training. Non-users said that types of facilities and timing were significant selection criteria.

The five administrators who were interviewed for this study identified seven major barriers they saw as limiting use or expansion of IBT programs.

The first barrier related to program ownership. Administrators at one MTI said that needed courses are often offered, but because businesses did not actively recruit participants, these classes were often canceled due to low enrollments.

The second barrier was ineffective promotion and communication. Two administrators at one site said that requested courses were often offered through extension, but because businesses did not use their extension course catalogs, they were unaware of them.

Two administrators said that program funding was a barrier to delivery or expansion of IBT. Each noted that staffs were too small to adequately promote and develop needed courses.

Three administrators noted that limited resources presented significant barriers. One said that MTI school administrators did not provide IBT programs with the needed support and planning time. Another noted that support services were inadequate. A third said that content resources needed to develop courses were often difficult to obtain.

Four administrators commented on barriers internal to the firms requesting/needing training. Two said that smaller companies were less interested in on-going training programs. They said that these organizations are often most concerned about training required by OSHA or other government agencies. They added that larger organizations with training departments were easier to work with. This comment was echoed by a third administrator. The fourth administrator said that businesses often took a short-term view of training, that they wanted "band-aid" courses, not on-going programs.

The sixth barrier concerned MTI image. One administrator said that many employers see MTIs as providers of machining and drafting courses, but few think of MTIs as sources of management-level courses. This was echoed in the comments from participants who reported thinking of MTIs as places for "occupational or trade training," a place for "specialized training," or a "source for entry level employees."

The seventh barrier was inadequate identification of industry training needs. One administrator said that community-wide surveys were needed to identify specific training needs. There were also echoes of this in the focus groups. At least one participant suggested such a strategy.

One administrator provided an example of an IBT project that "went bad." In this example, a business called the MTI requesting assistance. The firm wanted training, but was not sure what type of training it needed. After meeting with the MTI staff, the firm decided upon a course topic. The local MTI assisted the firm in identifying content. The local MTI contracted with another MTI that specialized in the desired content. This MTI was to deliver major portions of the course. Before the training was developed, the neighboring MTI "backed out" of the arrangement. The local MTI was able to present only a fraction of the content the firm needed. Employees needing this content were "plugged" into related day school programs and the IBT course was canceled.

Two major problems were identified as contributing to the downfall of this course. The first was that the firm was unwilling to send its employees to the regularly scheduled classes at the other MTI. The second was that the firm did not want to hold on-site training because of limited space and scheduling concerns.

Two administrators identified strategies to combat IBT barriers. One administrator commented that schools could market themselves as providers of specialized services such as small business training. This administrator commented that her/his MTI had requested added funds for a Training and Development coordinator to pursue this new strategy. The second administrator said that someone, possibly at the state level, should develop a central listing of consultants administrators could use for IBT.

Summary

Focus group participants and program administrators identified many factors affecting the use and growth of industry based training programs. Both administrators and focus group participants discussed a need to identify and promote needed courses. Each group described frustration about canceled courses. Administrators saw cancellations as "program ownership" problems, IBT users saw them as by-products of poor communications. Each stressed the need for community-wide training needs surveys.

Both focus group participants and administrators discussed a greater need to promote and/or communicate IBT course offerings. Both groups expressed a need for stronger liaisons between MTIs and industry.

Focus group participants and administrators commented on MTI image issues. While focus group participants expressed positive overall impressions of MTIs, they questioned MTI instructors' skills and knowledge. Focus group participants also noted that vendor experience and reputation are critical selection factors. Administrators noted that MTIs are seldom thought of as sources for management level training.

In addition to the above factors, focus group participants noted that location, cost, content, facilities, timing, and free training provided by vendors might affect their vendor selection. Administrators noted that funding and limited resources posed significant barriers to IBT expansion.

CHAPTER 5

CONCLUSIONS

This study was initiated to identify alternative models of short-term, upgrading and updating training for employed workers in business and industry. The study was conducted in two parts. The first phase was a literature review that provided the basis for a nine-cell matrix. This matrix conceptualized alternative models of industry based training as a function of the skill level the training addressed and the degree of program development activity (Figure 2.2). The second phase was a series of investigations designed to ascertain the extent to which these conceptualized alternative models were used by business and industry. This phase also sought to determine the relative importance of TI administrative and planning factors in the design and delivery of the various IBT models. Finally, this latter phase of the study sought to identify specific barriers to participation in MTI sponsored IBT. The results of the second phase have been reported in this document.

What follows are conclusions based upon the findings from Phase 1 and Phase 2 of this study. The conclusions and subsequent recommendations focus on the four objectives stated in Chapter 1. These conclusions are based upon (a) an extensive review of available literature, (b) more than 35 interviews conducted with MTI extension directors, (c) more than a dozen interviews conducted with providers of IBT in states other than Minnesota, (d) four focus group interviews with representatives of firms that had used MTIs for IBT, (e) four focus group interviews with firms that had not used MTIs for IBT, and (f) survey results from a random sample of 175 Minnesota businesses. Analyses of the survey data consisted of a series of one-way ANOVAs comparing dichotomously coded firm characteristics to levels of use of IBT and administrative and planning factors. Focus group interviews and individual TI extension interviews were transcribed and analysed for content themes by the principal investigator and research assistant for the project.

Use of Alternative Models of IBT

There is a high degree of industry based training activity being conducted by Minnesota's technical institutes. Most of this training is targeted toward the manufacturing and health care industries.

MTIs reported providing high levels of IBT. Minnesota businesses also reported extensive use of external training vendors. More than two-thirds of the firms surveyed in Minnesota reported using external vendors to provide some employee training. Nearly half of these use private vendors.

There appear to be a variety of ways of delivering industry based training. The nine models conceptualized by Stone and Manion (1988) offer one means of classifying these alternatives. Data from the survey, interviews and focus groups validated the existence of each model. The models were a function of two factors: the level at which training is targeted (general education, generic occupational training, job specific training) and the extent of program development activity (standardized, personalized, and customized programs). This framework suggested the following models of IBT:

Standardized General Education
Standardized Generic Occupational Training
Standardized Job Specific Training
Personalized General Education
Personalized Generic Occupational Training
Personalized Job Specific Training
Customized General Education
Customized Generic Occupational Training
Customized Job Specific Training

Firms in Minnesota make limited use of the all nine conceptualized IBT models. The extent to which specific models are used is difficult to determine as people use a variety of terms to describe IBT programs. When survey respondents categorized courses they had used, standardized job specific courses were reported as most common. When focus group participants described their most recently purchased training course, standardized generic occupational and personalized generic occupational programs appeared most common. However, with the exception of standardized generic occupational training, more than half of the survey respondents reporting some use of the other eight models reported only low usage.

It may also be concluded that, with the exception of standardized generic occupational and standardized job specific training, the general pattern of use of industry based training is similar between those who use MTIs for training and those who do not. MTI users were less likely to report any use of these two models of IBT.

As noted earlier, the reported use levels of "customized" or "job specific" models of IBT may be an artifact of semantics. Actual use levels may be lower than the data suggest. Information from the survey is inconsistent with both the telephone interviews of extension directors and the focus group interviews with industry representatives. Each of these

resources suggests limited use of such models. Because MTIs and many private vendors refer to their services as "customized" or "job specific," respondents may have been influenced regarding their labeling of programs.

Specific firm characteristics are associated with the reported use of individual IBT models. Although no consistent patterns emerged from the data, firm size, the number of sites constituting a firm, the location of the firm, and the type of firm all affected use of the various models of industry based training (see Table 5.1).

In summary, most firms make some use of external vendors to provide training for their employees. However, it cannot be concluded that any one particular IBT model dominates since firms tend to make limited use of all but the standardized job specific model conceptualized for this study. The processes employed in operationalizing a specific IBT model are influenced by a variety of firm characteristics.

Importance of Planning Factors in the Design and Delivery of IBT

Nine planning factors were identified in the literature as important considerations in the design and delivery of vendor provided employee training. Seven of these factors were specifically addressed in the survey. They included (a) needs assessment activities, (b) evaluation, (c) instructor characteristics, (d) availability of academic credit for training, (e) who pays for employee training, (f) location of training, and (g) communication practices of vendors. For each of these factors, two to seven related dimensions were identified and explored. Of these, the question of who pays for training was deleted from further analysis as no differences were found on any firm characteristic. The remaining two factors (liaison role and linkage) were primarily addressed through the focus group and administrator interviews.

Clear preferences regarding design and delivery factors emerged from this study. Overall, most firms give at least nominal support to the use of needs assessments for training design. A slight majority of the firms preferred to do their own assessments. This is in contrast to MTI extension directors who report that MTI personnel do most of the needs assessment in setting up IBT programs. In most cases the firm's definition of needs assessment consisted of interviewing one key company representative. More formal and objective techniques of needs analysis, such as surveys and observations, are typically less favored. This finding is consistent with data gathered in the individual administrator interviews and the literature review.

One explanation for the lack of commitment to needs assessment may be that some firms' training is externally driven

Table 5.1

Summary of IBT Model Use as a Function of Firm Characteristics

Standardized General Education	Standardized Generic Occupational Training	Standardized Job Specific Training
Greater frequency of use by single site firms than by multiple site firms Service firms reported lower frequency of use than did manufacturing firms		Less use by large firms than small firms Small firms reported more high use than did large firms Greater Minnesota firms more frequently reported no or low use than did Twin Cities firms Twin Cities firms reported moderate to high use more frequently then did Greater Minnesota firms
Personalized General Education	**Personalized Generic Occupational Training**	**Personalized Job Specific Training**
TI users that did all employee training locally, reported greater frequency of use than did TI users that used non-local training	Large TI users reported greater frequency of overall use than small TI users	Firms without a formal training structure reported greater frequency of use than did firms with a formal training structure
Customized General Education	**Customized Generic Occupational Training**	**Customized Job Specific Training**
TI users that did all training locally reported greater frequency of use than did TI users that used non-local sources of training		Firms that do all training locally, reported greater frequency of use than did firms that use non-local sources of training TI users with no formal training function reported greater frequency of use than did TI users with a formal training function

(e.g., health related businesses). Another explanation could be that smaller firms lack the resources to conduct needs analyses. A third reason many firms do not conduct thorough needs analyses is that many business owners/managers believe they already know what training their employees need. Larger firms are more likely to have the staff and the expertise to engage in needs assessment activities and as such, are more likely to complete the process.

Similar to needs assessment, evaluation of training was recognized as an important activity. Evaluation of skills acquired and improvement in job performance were reported as the most frequently evaluated training factors. However, most business representatives interviewed seemed unconcerned with evaluation. While most reported using end-of-course written evaluations to determine course value, some reported using observation and interviews. Few participants reported using long-term follow-up to training. Similarly, extension administrators reported using end-of-course surveys as the principal form of training evaluation. The same was true of extension directors. Based upon this data it may be concluded that the general nature of training evaluation is the traditional end-of-course "happiness index" or participant evaluation form.

Firms will pay for industry based training when it is related to the employee's job. This is true for all types of firms included in this study.

Businesses are generally more interested in a prospective instructor's experience in, and knowledge of, the industry area in which he or she will teach than they are in academic background or understanding of adult learning. Despite this fact, there is no best profile for an effective instructor. The mix of desired instructor characteristics may vary based upon the type of business and the nature of the program being delivered. There is some evidence that industry experience is more valued if it is recent and content-related. This experience affects the instructor's credibility. Instructor effectiveness was considered a function of credibility. Ability to adapt the actual delivery of training is also seen as a credibility issue. Businesses showed strong preferences for "real-world" learning experiences. There was some evidence from the focus group data that non-user firms were suspect of the credentials of TI instructors.

While preferences regarding training location emerged, they were not strongly held. These preferences may be a function of the type of training and the firm's past experience with use of alternative training locations.

The offering of academic credit, CEUs or college credit, is not a major issue outside the health care industry. Health care

professionals needed continuing education credit to maintain their licenses. This may also be true within other licensed occupational areas.

Visits from vendor sales representatives are less preferable to flyers, catalogs, or brochures as means of promoting training programs. However, Minnesota firms do like having a vendor representative available if they wish to make a contact. This finding supports Connor's (1984) recommendation discussed earlier in Chapter 2.

If an external vendor can show a firm that the content and skills to be developed are what the firm needs, the cost of a program, location, and timeliness of delivery are of lesser importance.

While we may draw general conclusions regarding the design and delivery of IBT, we may also conclude that specific firm characteristics affect training preferences. While clear patterns were absent from these data, between six and eight (of a possible forty) individual factor dimensions were significantly related to either firm size, firm sites, training source, location, or firm type. There were only three factor dimensions associated with training structure (see Table 5.2).

Administrative and Planning Factors' Relationship to IBT Models

Overall, we may conclude that where differences in administrative and planning factors exist, they are more likely related to promotional activities on the part of vendors and the selection criteria used by individual firms. More than half of the differences found in IBT model use related to one of these two administrative and planning factors.

We may also conclude that where differences exist in administrative and planning factor scores, higher scores were related to low and moderate use of the IBT models. This suggests that firms inclined to make limited use of a particular IBT model are also more likely to express stronger preferences on those differentiating factors. In a very real sense, such firms are likely to be "tough customers" for the IBT vendor.

Barriers to IBT

From the focus group interviews, we may conclude that industry perceives a number of barriers to the delivery of IBT by Minnesota's technical institutes. The first of these barriers is the availability of needed courses. Many business representatives commented that needed courses were not offered. They added that when needed courses were offered, they were often canceled due to low enrollment.

Table 5.2

Summary of Differences Associated with
Firm Characteristics and Planning Factors

Firm Size

Compared to small firms, large firms tend to:

- prefer catalogs and training samples
- prefer visits from vendor representatives (users only)
- prefer on-site training
- prefer restaurant meeting rooms for training
- prefer not to use pretests in needs assessments
- place more importance on the academic credentials of instructors
- prefer not to use nearby schools and colleges for training sites
- not consider the cost of a training program when selecting a vendor

First Sites

Compared to firms that have a single site, multiple site firms tend to:

- prefer to have vendor representatives available
- prefer training at a nearby hotel facility
- prefer not to use worker observation pretests or questionnaires in needs assessment
- prefer the availability of C.E.U. credit
- place more importance on skills developed in a course when selecting a vendor
- place more importance on the location of the training in selecting a vendor

Training Source

Compared to firms that use only local sources for training, firms using local and non-local sources tend to:

- prefer samples of training
- prefer training sited at nearby hotels
- be less likely to prefer training at nearby school or college (users only)
- prefer training conducted in restaurant meeting rooms
- prefer the availability of C.E.U. credits
- be less likely to indicate that worker observation is important in needs assessment
- be less likely to indicate that pretests are important in needs assessment (users only)
- be less likely to indicate that evaluating job performance is important
- indicate that evaluating physical setting is important
- be less likely to indicate that the reputation is important in selecting a vendor
- consider the location of training important in selecting a vendor (users only)

Location

Compared to firms located in Greater Minnesota, firms located in the Twin Cities tend to:

- prefer having a vendor representative available
- prefer training in nearby hotel (users only)
- be less likely to prefer training conducted in a restaurant meeting room
- consider the academic qualifications of course instructors
- consider the instructors knowledge of industry important
- be less likely to evaluate skills or knowledge acquired
- consider the timeliness of delivery important in selecting a vendor

Table 5.2 (continued)

Training Structure	Firm Type
Compared to firms without a formal training structure, firms with a formal training structure tend to:	Compared to manufacturing firms, service firms tend to:
• prefer a vendor representative to be available (users only)	• be less likely to prefer a catalog of courses
• prefer on-site delivery of training (users only)	• prefer samples of training
• be less likely to prefer training at a nearby school or college (users only)	• be less likely to indicate that college credit for training is important
• prefer the availability of C.E.U. credit (users only)	• value the use of pretests in needs assessment
• be less likely to value the use of supervisor interviews in needs assessment	• be less likely to consider an instructor's business and industry experience important (users only)
• consider an instructor's academic qualifications and knowledge of industry to be important	• consider an instructor's training experience and knowledge of adult education to be important
• evaluate the physical setting of the training	• consider the skills developed, the cost, and the location of training in selecting a vendor
• be less likely to consider the cost of a training program in selecting a vendor	

Note. (users only) indicates a separate analysis for firms that reported use of MTIs for IBT. For more detail, see Tables 4.10, 4.12, 4.14, 4.17, 4.19, 4.22, 4.25.

The second major barrier dealt with accessing MTI IBT programs. Business representatives expressed a need for better information about course and program offerings. Several participants commented on the importance of MTI liaisons.

The third barrier businesses voiced was confidence in instructor skills and abilities. Many business people appear to doubt that MTI instructors maintain state-of-the-art skills and knowledge. In a related issue, business representatives said that vendor reputation and expertise in content area were important vendor selection factors.

Location and cost also appear to be potential barriers to businesses' use of external training resources.

We may conclude that administrators see similar barriers but have a different perspective on them. Administrators perceived the need for community-wide training needs analyses, but were frustrated that they had neither the time, nor the resources, to undertake such a project. They also noted that program ownership was a common problem. Administrators stated that many courses did not fill, and thus had to be canceled, because firms were unwilling to promote them.

Administrators believed that ineffective promotion and communication were major barriers to offering effective IBT. This belief is consistent with information provided by the business representatives. In a related note, administrators and business representatives alike reported that MTIs were seldom thought of as sources of management level training.

Overall, administrators reported insufficient resources to adequately promote and support expanding IBT programs.

Recommendations

The following recommendations are based upon the findings of this study. These findings include results from a statewide survey of Minnesota businesses, focus group interviews with users and non-users of MTIs and individual interviews with TI extension directors. Some of the recommendations presented are drawn from focus group participants, or from extension directors who were interviewed for this study. The first set of recommendations addresses state-level activities and the second set addresses local activities.

State Board of Vocational Technical Education

Based on interviews with extension directors, two recommendations are offered:

1. There should be established a cadre of needs assessment experts who can perform as a "flying squad" to assist local MTI extension directors in developing fully customized IBT.

2. The State Board, through the Customized Training Division, should establish a bank of instructors/consultants who are available to develop and/or provide IBT. Such a listing should be by specialty area.

Local Minnesota Technical Institutes

Based on the surveys and focus group interviews, five recommendations are offered:

1. Extension administrators should give attention to firm characteristics in the design and delivery of IBT. It may be useful to craft different strategies relative to specific firm characteristics and/or combinations of these characteristics.

2. It would be useful to create a process where a lead firm recruits other class participants. The MTI should provide information on minimum class sizes and current registration requirements and encourage smaller firms to assist in identifying potential participants. This would help alleviate

one of the key barriers to the delivery of IBT: cancellation of offerings due to low enrollment.

3. Extension directors should investigate alternative marketing communication strategies to better inform both users and non-users about the types of IBT courses offered and how to obtain MTI assistance. While comprehensive catalogs may be comparatively inexpensive, they may not be cost effective. Further, extension directors should be sensitive to the desirability of "direct selling" to some clients.

4. Administrators should undertake community-wide surveys to identify industry's training needs, particularly those needs of small businesses. Information provided by these surveys could be used to recruit class participants and reduce the number of courses canceled due to low enrollments.

5. Each MTI should have a specific person firms can contact with their training concerns. This individual should be competent in conducting needs assessment procedures.

Future Research

1. The models of IBT described in this study should be further explored. Such a study should examine the circumstances under which each model works best, not whether one model works better than another.

2. Two policy related issues that emerged from this study merit further investigation. Both of these areas require some description before critical issues can be understood.

   One of the assumptions in the literature regarding the role of vocational-technical institutes' involvement in industry based training is that the schools benefit from industry based training programs. These benefits are related to increased use of facilities and instructors (Geber, 1987; Kopecek, 1984). Many of the schools contacted for this study functioned more as training brokers than as training developers. On average, fewer than 25% of IBT courses are taught by resident faculty. In many cases the extension director serves as a middleman and coordinator of other vendors, community resources, or consultants. Within these situations there is no MTI faculty involvement of the kind that would increase their awareness of industry trends, and there is often no paid use of otherwise idle school facilities. The issue is, whether or not this is an appropriate role for the MTIs and an appropriate use of a tax-supported institution. Related questions include (a) whether the MTI system should become a surrogate training department for a firm as Lloyd (1987) discussed, or (b) should an MTI function solely to cushion a training department's budget

(Geber, 1987). If so, should such a function be limited to particular types or sizes of businesses (e.g., focus on the needs of small enterprises)?

A second related policy issue is the relationship of regular curriculum and industry based training programs. Some of the MTI-provided IBT encountered during the course of this project was clearly aimed at managerial level training and education. Some would argue that this is usually considered the domain of the colleges and universities and incongruent with prebaccalaurate institutions. Does this violate Kopecek's (1984) and Geber's (1987) concern over neglecting pre-employment mission of vocational and technical education?

Summary

This study was originally conceived to identify alternative models of short-term, upgrading and updating training for employed workers. Over the course of this study, this type of instruction was identified as industry based training. Evidence from this study validates the existence of different models. The emergent nine model matrix of alternative IBT models was a function of the occupational level to which training was targeted, and the degree of program development required to deliver a program.

This study found evidence of the utility of each conceptualized IBT model. That is, there was no "one best model" we could recommend. Each model seemed to meet different needs.

These findings should provide assistance to MTI extension administrators when considering available training options to meet the needs of local firms. For some firms, the MTI may adapt current programs to fit client needs. In other instances, they may need to undertake extensive curriculum development, and employ the services of a needs assessment and/or subject matter expert.

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APPENDIX A

Advisory Committee Members

Caryl Bentley	Department of Vocational and Technical Education, University of Minnesota
Chuck DeVore	North East Metro Technical Institute
Charles Hopkins	Business and Marketing Education, University of Minnesota
Jerry Keinath	NOVUS Inc.
Gerald Stuhr	Anoka Technical Institute
Janice Templin	Minnesota State Board of Vocational and Technical Education
Clem Yares	NSP Riverside Training Center

APPENDIX B

Extension Director Telephone Interview Protocol

SURVEY QUESTIONNAIRE FOR TI STUDY

NAME OF INTERVIEWEE _____

NAME OF SCHOOL _____

POSITION _____

I am with the Minnesota Research and Development Center for Vocational Education at the University of Minnesota and am involved in a long-term study attempting to ascertain the kinds of short-term training that is being done by post-secondary schools for employed workers.

1A. Do you do any sort of short-term training for employed workers?

1B. If yes, what percentage, would you estimate, of this training is for service occupations as opposed to production/ manufacturing jobs?

service _____ production _____

private _____ public _____

organization _____ individual _____

FOR THE FOLLOWING QUESTIONS, I WOULD LIKE TO CONCENTRATE ON SERVICE OCCUPATIONS.

2. How is this training funded?

company state school individual

3. Who teaches?

regular instructor others (identify)

4. What are the locations for this training?

in-house percentage _____

on campus percentage _____

other percentage _____

5. Do businesses want credit (certification)?

yes percentage _____ no percentage _____

6. What types of promotion are used?

personal selling _____

seminars _____

direct mail _____

brochures/flyers _____

personal letters _____

advertisements: newspaper _____

radio _____

television _____

promotions: (i.e., company of the month) _____

other _____

7. What is the average size of the business that you serve?

0-20 ____ 21-100 ____ 100-250 ____ 250+ ____

8. What kinds of training do you offer?

management/supervision _____

sales _____

communication _____

accounting _____

pre-employee _____

computer _____

customer service _____

retraining _____

health care _____

writing _____

performance appraisal _____

career counseling _____

business law _____

industrial/manufacturing _____

technical: other than computer _____

train the trainer _____

other _____

9A. What types of businesses have you serviced?

finance	wholesale	communications	transportation
retail	mining	manufacturing	construction
insurance	real estate	health care	other

9B. % OF RECERTIFICATION: _____

9C. Who have you serviced the most? _____

10A. In the design of the program, which of the following approaches do you use

Standard - using existing programs without any adaptations

Personalized - using existing programs with adaptations for the audience

Customized - creating new programs that are tailor-made for the audience's needs

10B. What percentage of your total programming is represented by the following types of training?

Standard _____ Personalized _____ Customized _____

11. What skill levels do you address?

general skills percentage _____

generic occupational skills percentage _____

job/company specific percentage _____

12A. How do you determine the training needs as you design your programs?

interviews surveys observation advisory committees

records examinations other

12B. Who, typically, conducts the needs assessment?

trainer: school faculty trainer: company person

broker as the trainer school administrator

company's administrator school specialist in NA

company's specialist in NA other

13A. What kinds of evaluation do you do?

course _____

participant _____

follow-up _____

Thank you for your time and help.

APPENDIX C

Focus Group Procedures

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INTRODUCTION

Hello and welcome to our session today. Thank you for taking the time to join our discussion concerning Industry Based Training (IBT). My name is _____ and I represent the University of MN. (Assisting me today is _____.) We are attempting to gain information about your use, or potential use, of Minnesota Technical Institutes (MTIs) as training agencies and how they might work best for you to meet your training needs. We are not looking at the "regular curriculum" offered by the Technical Institutes; but programs that are designed and delivered specifically for your organization. We have invited people who represent a variety of organizations which may benefit from such a relationship.

You were selected because you have certain things in common that are of particular interest to us. And we are interested in your views because you are representative of others in business and industry.

Today we will be discussing training programs conducted by someone or some organization external to your company. This includes kinds of training offered, what you want from external providers of training, what is available, how you find out about them, etc. There are no right or wrong answers, but, rather differing points of view. Please feel free to share your point of view even if it differs from what others have said.

Before we begin, let me remind you of some ground rules. This is a University of MN research project. We appreciate your willingness to help us out and taking the time to do so. We want you to speak up but ask that only one person speak at a time. We're tape recording the session because we don't want to miss any of your comments. If several are talking at the same time we'll miss your comments. We will be on a first name basis today, and in our later reports there will not be any names attached to comments. You may be assured of complete confidentiality. Keep in mind that we're just as interested in negative comments as positive comments, and at times the negative comments are the most helpful.

Our session will last about an hour and a half and we will not be taking a formal break. Because of "house rules" here at _____ TI we are not able to provide you refreshments during the session. However the rest rooms are _____. Feel free to leave the table if you need to, but please do so quietly.

Let's begin. We've placed name cards on the table in front of you to help us remember each others' names. Let's find out some more about each other by going around the room one at a time. Tell us your name and also where you work, what you do and the size of your company.

FOCUS GROUP QUESTIONING ROUTE

I) Introductory questions:

DESCRIBE THE PROCEDURE WE'LL USE FOR THE DISCUSSION. READ THE QUESTIONS OUT LOUD ONCE AND TELL THEM TO WRITE OUT THEIR RESPONSES. TELL THEM YOU WILL DISCUSS 1.0, 1.1, 1.2, 2.0, 2.2, AND 2.3. SEE BELOW FOR THE THREE (a, b, & c) SECTIONS OF THOSE QUESTIONS. ASK IF THERE ARE ANY QUESTIONS.

1: USER: Describe the most beneficial training program an MTI provided for employees of your company.

NONUSER: Describe the most beneficial training program an outside vendor provided for you; who was that vendor?

IF NO OUTSIDE VENDOR HAS BEEN USED DESCRIBE YOUR IDEAL TRAINING SITUATION AS IF IT WERE PROVIDED BY AN OUTSIDE VENDOR.

RE: Questions on the handout.

Discuss #1
Discuss #2 and A: Describe what occurred for a given model;
B: Describe what would improve it;
Open the question to others;
C: Discuss in general, not a given model.

Discuss #2.2 : Discuss same as above.

Discuss #2.3 : Discuss same as above.
C: What would you want done under what conditions?

2: Think back, other than what we've discussed, were there other things you liked about the training?

3: Why did you select the vendor that you used?

3.1: How did you find out about them?

4: USERS: What other types of training would you use TIs for?

NONUSERS: Why haven't you used the TI for any of your training?

5: USERS: Is there any reason why you wouldn't continue to use the TIs?

NONUSERS: What types of training would you consider using a TI to provide?

ASK ASSISTANTS FOR ADDITIONAL QUESTIONS

TURN OFF RECORDER

We just want to ask one question off the record: What have we missed?

FOCUS GROUP THOUGHT STARTER FOR NON-USERS

Form N: Name: _____ Company Name & Size:_____

INFORMATION ABOUT EXTERNAL TRAINING PROGRAMS

Part I

1) Please describe the most beneficial training program an outside vendor provided for you; who was that vendor?

If no outside vendor has been used describe your ideal training situation if it were provided by an outside vendor.

PLEASE DESCRIBE THE MOST BENEFICIAL TRAINING PROGRAMS IN TERMS OF:

1.0 Please describe the training; what was taught; to whom; etc.

1.1 Skill level at which the training was targeted:
_____ General skills; i.e., writing, computation, basic computers, etc.
_____ General occupational skills; i.e., welding, clerical, sales, etc.
_____ Job or Company specific skills

1.2 Program types:
_____ Off-the-shelf program
_____ Personalized program
_____ Customized; designed for your company exclusively

1.3 Was credit given? What type of credit?

1.4 Who paid for the training?

1.5 How many participants were in the class?

Part II

2.0 Describe the instructor. Where was he/she from? What was his/her background or credentials?

2.1 Where was the training conducted? What format was used? (e.g., day-long workshops, regular "class" format, etc.).

2.2 Describe the type of training evaluation used when the program was completed.

2.3 Was there any type of needs assessment conducted prior to the training? Please describe.

FOCUS GROUP THOUGHT STARTER FOR USERS

Form U: Name: _____ Company Name & Size: _____

INFORMATION ABOUT EXTERNAL TRAINING PROGRAMS

Part I

1) Please describe the most beneficial training program an MTI has provided for you.

PLEASE DESCRIBE THE MOST BENEFICIAL TRAINING PROGRAMS IN TERMS OF:

1.0 Please describe the training; what was taught; to whom; etc.

1.1 Skill level at which the training was targeted:
_____ General skills; i.e., writing, computation, basic computers, etc.
_____ General occupational skills; i.e., welding, clerical, sales, etc.
_____ Job or Company specific skills

1.2 Program types:
_____ Off-the-shelf program
_____ Personalized program
_____ Customized; designed for your company exclusively

1.3 Was credit given? What type of credit?

1.4 Who paid for the training?

1.5 How many participants were in the class?

Part II

2.0 Describe the instructor. Where was he/she from? What was his/her background or credentials?

2.1 Where was the training conducted? What format was used? (e.g., day-long workshops, regular "class" format, etc.).

2.2 Describe the type of training evaluation used when the program was completed.

2.3 Was there any type of needs assessment conducted prior to the training? Please describe.

APPENDIX D

Interview Protocol for Extension Directors

TI EXTENSION ADMINISTRATORS INTERVIEW PROTOCOL

I. Review our study, purpose, etc.

II. Describe the six matrix categories; go over definition, etc.

Convey that we want a description of a program they might have in each of the six categories.

Beginning with category 1, the standard model with general skill delivery, answer the following questions then follow with categories 2 - 6.

Category _____.

A. Describe a successful training situation in this category.

B. Describe the Needs Assessment done.

1. Who does it?

school faculty trainer
company person trainer
broker as trainer
school administrator
company administrator
company NA specialist
school NA specialist
other

2. What is done; how?

3. Structure?

4. Do you use interviews?

Who is interviewed?
workers
superior
subordinate
companies' trainer
other company administrator (specify)
other

5. Surveys?

   Who surveyed?
   workers
   superior
   subordinate
   companies' trainer
   other company administrator (specify)
   other

   Can we have a copy of the survey?

6. Advisory committees?

   Who is on it?

7. Observations (who, what)?

8. Examination of records?

9. Other?

C. Who is the instructor?

   Provide percentages if various people act as instructor.

   extension administrator:
   school faculty:
   company's trainer:
   company's worker:
   other:

D. Evaluation

1. Who does it?

   school faculty trainer
   company person trainer
   broker as trainer
   school administrator
   company administrator
   company NA specialist
   school NA specialist
   other

2. What is done; how?

3. Structure?

4. Do you use interviews?

   Who is interviewed?
   workers
   superior
   subordinate
   companies' trainer
   other company administrator (specify)
   other

5. Surveys?

   Who surveyed?
   workers
   superior
   subordinate
   companies' trainer
   other company administrator (specify)
   other

   Can we have a copy of the survey?

6. Advisory committees?

   Who is on it?

7. Observations (who, what)?

8. Examination of records?

9. Other?

10. Evaluation of the course?

11. Participant follow-up?

D. What types of businesses are typically serviced in this category?

E. What kind of training was done?

F. Size of business?

G. Number of participants?

H. Names of businesses you've served. Can we interview them?

I. Barriers?

TRAINING MODELS

1. Standard: using existing programs without any adaptations.

2. Personalized: using existing programs with adaptation for the audience.

3. Customized: creating new programs which are tailor made for the needs of the audience.

SKILL DELIVERY LEVEL

1. General skills: basic skills; e.g., reading, computation, communication.

2. General occupational skills: skills related to a specific field of employment or industry; e.g., supervisory training, sales training, etc.

3. Job/company specific: unique to a specific job classification or company; e.g., specific welding technique, management procedures unique to an organization, etc. These programs can not be transferred to another firm or industry cluster.

TRAINING MODEL AND SKILL DELIVERY LEVEL

	Level of Specificity		
	General Education	Generic Occupation	Job/Company Specific
Standard			
Personalized			
Customized			

Behavioral Aspects

1. Instructor
2. Needs Assessment
3. Evaluation
4. Location
5. Promotion
6. Funding
7. Status of Business
8. Credit

APPENDIX E

Survey Instrument

INDUSTRY BASED TRAINING QUESTIONNAIRE

PART I: The following are questions about your use of outside vendors.

1. From whom do you buy your training programs/courses? Please circle all that apply.

   a. Minnesota Technical Institute
   b. Local Community College
   c. University of Minnesota
   d. State College
   e. Private College or Technical School
   f. Private Vendor of Training Programs
   g. Other _____
   h. We do not use outside vendors for our training

If you have used a Minnesota Technical Institute (AVTI) to provide short-term training for your employees, please respond to the following questions relative to that experience. If you have not, but have used other vendors, please base your responses on that experience. If you have never used a vendor to provide training, please assume you would and then respond. Please do not include vendors who provide training free of charge with a purchase of their equipment/product.

2. How do you prefer to be informed of training programs currently offered by vendors (including Minnesota Technical Institutes)? Rank all of the following, from (1) most preferred to (5) least preferred.

	Most Preferred				Least Preferred
a. Catalogue listing of programs	1	2	3	4	5
b. In-depth program brochures	1	2	3	4	5
c. Periodic visits from vendor representative	1	2	3	4	5
d. Representative available for me to contact	1	2	3	4	5
e. Samples available on videotape, cassette, etc., for me to preview	1	2	3	4	5
f. Flyers on the courses/programs	1	2	3	4	5
g. Other (Please Specify) _____	1	2	3	4	5

3. Where do you prefer to have vendor provided training for your employees conducted? Circle each statement on a scale from (1) most preferred (5) least preferred.

	Most Preferred				Least Preferred
a. In our facility	1	2	3	4	5
b. Nearby hotel	1	2	3	4	5
c. Nearby college/school	1	2	3	4	5
d. Restaurant meeting room	1	2	3	4	5
e. Other (Specify_____)	1	2	3	4	5

4. Who pays for vendor provided, employee training in your firm. Circle the best response.

a. Company pays for all training when job-related
b. Company pays for part when job-related
c. Company pays for all training regardless of job-relatedness
c. Employee pays for any training
d. Other Arrangement (specify)_____

5. Is the availability of academic credit an important issue in your decision to purchase vendor supplied training? Circle the best response.

a. Yes
b. No (If no, go to Question #7)

6. How important are the following types of credit for the courses purchased/taken? Circle each statement on a scale of (1) very important to (5) not important.

	Very Important				Not Important
a. College credit	1	2	3	4	5
b. Continuing education credits	1	2	3	4	5
c. Other types of credit (specify)_____	1	2	3	4	5

7. In general, is it important that the vendor assess, then include, your specific needs in the development of the training program? Circle the best response.

a. Yes, we want the vendor to conduct needs assessments
b. No, we prefer to conduct our own needs assessments (Go to Q #9)
c. It's not important (Go to Question #9)

8. If vendors were to conduct needs assessment, how important would each of the following types of activities be? Circle each statement on a scale from (1) very important to (5) not important.

	Very Important				Not Important
a. Observe workers	1	2	3	4	5
b. Interview workers	1	2	3	4	5
c. Interview supervisors	1	2	3	4	5
d. Interview you	1	2	3	4	5
e. Give pretests to determine skills/knowledge	1	2	3	4	5
f. Questionnaires	1	2	3	4	5
g. Other	1	2	3	4	5
(specify)_____					

9. How important are the following factors when considering instructor qualifications?

	Very Important				Not Important
a. Academic qualifications	1	2	3	4	5
b. Business/industry experience	1	2	3	4	5
c. Knowledge of industry	1	2	3	4	5
d. Training experience	1	2	3	4	5
e. Knowledge of adult education	1	2	3	4	5
f. Other factor(s)	1	2	3	4	5
(specify)_____					

10. Which of the following do you usually evaluate upon completion of the training? Circle each statement on a scale from (1) always evaluate to (5) rarely/never evaluate.

	Always Evaluate				Rarely/never Evaluate
a. Skills/knowledge acquired by participant	1	2	3	4	5
b. Improvement in job performance	1	2	3	4	5
c. Effectiveness of instructor	1	2	3	4	5
d. Course content	1	2	3	4	5
e. Physical setting	1	2	3	4	5
f. Trainee satisfaction with the training	1	2	3	4	5
g. Other	1	2	3	4	5
(specify)_____					

11. Who should conduct the evaluation? Circle the best response.

    a. The vendor who provided the training
    b. Internally/we will do the evaluation
    c. The instructor who conducts the class

12. How important are (or would be) the following factors when considering a vendor of training? Circle each statement on a scale from (1) very important to (5) not important.

	Very Important				Not Important
a. Content taught	1	2	3	4	5
b. Skills developed	1	2	3	4	5
c. Qualifications of instructor	1	2	3	4	5
d. Timeliness of delivery	1	2	3	4	5
e. Cost of program	1	2	3	4	5
f. Location of training	1	2	3	4	5
g. Reputation of vendor	1	2	3	4	5
h. Other _____	1	2	3	4	5

13. Have you used outside vendors (including Minnesota Technical Institutes) for employee training? Circle the best response.

    a. Yes
    b. No (If no, go to question 17)

To respond to questions 14-17, **please refer to the enclosed diagram**, "Types and Levels of Training Programs."

14. If yes, approximately what percentage of vendor provided training or assumed future training fits into each box? Fill in the appropriate percentage for each box (the sum of the amounts you indicate should add up to 100%).

Standardized General	Standardized Generic	Standardized Specific
___% Vendor Training	___% Vendor Training	___% Vendor Training
Personalized General	Personalized Generic	Personalized Specific
___%Vendor Training	___% Vendor Training	___%Vendor Training
Customized General	Customized Generic	Customized Specific
___% Vendor Training	___% Vendor Training	___% Vendor Training

15. Have you ever used a Minnesota Technical Institute for employee training? Circle the best response.

    a. Yes
    b. No (If no, go to question 17)

16. If yes, how has the training provided by the Minnesota Technical Institutes been distributed? Fill in the appropriate percentage for each box (again, the sum should be 100%).

Standardized General	Standardized Generic	Standardized Specific
___% Vendor Training	___% Vendor Training	___% Vendor Training
Personalized General	Personalized Generic	Personalized Specific
___%Vendor Training	___% Vendor Training	___%Vendor Training
Customized General	Customized Generic	Customized Specific
___% Vendor Training	___% Vendor Training	___% Vendor Training

17. Whether you have used a Minnesota Technical Institute or not, and given what you know about the Minnesota Technical Institute system, how appropriate do you feel a Minnesota Technical Institute is for each type of training? Circle each box # on a scale from (1) very appropriate to (5) not appropriate. (If necessary, refer to the diagram, "Types and Levels of Training Programs.")

	Very Appropriate				Not Appropriate
Box #1 (Standardized/General)	1	2	3	4	5
Box #2 (Personalized/General)	1	2	3	4	5
Box #3 (Customized/General)	1	2	3	4	5
Box #4 (Standardized/Generic)	1	2	3	4	5
Box #5 (Personalized/Generic)	1	2	3	4	5
Box #6 (Customized/Generic)	1	2	3	4	5
Box #7 (Standardized/Specific)	1	2	3	4	5
Box #8 (Personalized/Specific)	1	2	3	4	5
Box #9 (Customized/Specific)	1	2	3	4	5

Part II. Questions 18-24 pertain to you and your business. (Circle the best response.)

18. Does this site represent the entire company?

    a. Yes
    b. No

19. How many people do you employ at this location?

    a. Under 50
    b. 50 - 200
    c. 200 - 500
    d. Over 500

20. If you are part of a larger organization, how many people are employed by the company?

    a. Under 50
    b. 50 - 200
    c. 200 - 500
    d. Over 500
    e. Not Applicable

21. Is all employee training provided locally?

    a. Yes
    b. No

22. Please indicate the location of your business.

    a. Seven County Metro Area (Twin Cities)
    b. Greater Minnesota

23. Who is responsible for training in your organization? (Circle the best response.)

    a. We have a training department
    b. We have training specialists within a HRD Personnel department
    c. Managers/line supervisors handle most of the training
    d. Training committee
    e. Other _____

24. Please check the category that best fits your business and provide a brief description in the blank on the right.

Categories	Description of Business
__Agriculture	
__Mining	
__Construction	_____
__Manufacturing-Durable Goods	
__Manufacturing-Nondurable Goods	_____
__Transportation	
__Health Care	_____
__Communications	
__Public Utility	_____
__Wholesale Trade	
__Retail Trade	
__Finance and Credit	
__Insurance	
__Real Estate	
__Business Services	
__Personal Services	
__Entertainment/Recreation Services	
__Public Administration	
__Other, not listed _____	

25. What is your position/job title? _____

PLEASE RETURN IN THE ENCLOSED ENVELOPE BY MAY 11

APPENDIX F

IBT Models Description

The Skills Continuum

General Skills are essential to success in any employment situation. Traditionally, these are "basic" skills: math, reading, writing, etc. They are considered prerequisite to successful participation in other levels of training.

Generic Occupational Skills are essential to success in a general field of employment. Examples might include supervisory training, sales training, welding, microcomputer operations, etc. These skills once developed would be easily transferable between companies or industries.

Job Specific Skills are unique to a particular job cluster or to a job within an organization. Examples might include specific job techniques (welding), use of particular tools or materials (CAD/CAM), etc. While these skills might be transferable to similar jobs in other companies, they would unlikely be transferable to other industries.

The Program Continuum

Standardized Programs are considered off-the-shelf in that the vendor has a basic program and modifies it very little.

Personalized Programs are based upon existing programs but have been substantially altered to fit the needs of a company or business.

Fully Customized Programs have incorporated a high degree of needs assessment activities and the program developed is specific to a company or business.

APPENDIX G

Crosstabular Analysis Tables for Reported Use of IBT

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Table G.1

Use of Standarized General Education IBT
as a Function of Firm Sites

Count Row % Column % Total %	Single Site Firms	Multiple Site Firms	Row Total
No Use	18 51.4 69.2 31.6	17 48.6 54.8 29.8	35 61.4
Low Use	4 26.7 15.4 7.0	11 73.3 35.5 19.3	15 26.3
Moderate Use	3 100.0 11.5 5.3	0 0 0 0	3 5.3
High Use	1 25.0 3.8 1.8	3 75.0 9.7 5.3	4 7.0
Column Total	26 45.6	31 54.4	57 100.0

Chi Square	DF	Significance	Cramer's V
6.90981	3	.0748	.34817

Table G.2

Use of Standarized Job Specific IBT
as a Function of Firm Size

Count Row % Column % Total %	Small	Large	Row Total
No Use	8 36.4 28.6 14.0	14 63.6 48.3 24.6	22 38.6
Low Use	10 55.6 35.7 17.5	8 44.4 27.6 14.0	18 31.6
Moderate Use	3 33.3 10.7 5.3	6 66.7 20.7 10.5	9 15.8
High Use	7 87.5 25.0 12.3	1 12.5 3.4 1.8	8 14.0
Column Total	28 49.1	29 50.9	57 100.0

Chi Square	DF	Significance	Cramer's V
7.34330	3	.0617	.35893

Table G.3

MTI Users' Use of Standarized Job Specific IBT as a Function of Firm Size

Count / Row % / Column % / Total %	Small	Large	Row Total
No Use	9 34.6 50.0 22.0	17 65.4 73.9 41.5	26 63.4
Low Use	4 50.0 22.2 9.8	4 50.0 17.4 9.8	8 19.5
Moderate Use	1 33.3 5.6 2.4	2 66.7 8.7 4.9	3 7.3
High Use	4 100.0 22.2 9.8		4 9.8
Column Total	18 43.9	23 56.1	41 100.0

Chi Square	DF	Significance	Cramer's V
6.27849	3	.0988	.39132

Table G.4

MTI Users' Use of Personalized Generic Occupational IBT as a Function of Firm Size

Count Row % Column % Total %	Small	Large	Row Total
No Use	14 51.9 77.8 34.1	13 48.1 56.5 31.7	27 65.9
Low Use	1 14.3 5.6 2.4	6 85.7 26.1 14.6	7 17.1
Moderate Use	3 75.0 16.7 7.3	1 25.0 4.3 2.4	4 9.8
High Use		3 100.0 13.0 7.3	3 7.3
Column Total	18 43.9	23 56.1	41 100.0

Chi Square	DF	Significance	Cramer's V
7.10437	3	.0686	.41627

Table G.5

MTI Users' Use of Personalized General Education IBT as a Function of Training Source

Count Row % Column % Total %	Local and Other	Local Only	Row Total
No Use	24 77.4 80.0 58.5	7 22.6 63.6 17.1	31 75.6
Low Use	2 33.3 6.7 4.9	4 66.7 36.4 9.8	6 14.6
Moderate Use	2 100.0 6.7 4.9		2 4.9
High Use	2 100.0 6.7 4.9		2 4.9
Column Total	30 73.2	11 26.8	41 100.0

Chi Square	DF	Significance	Cramer's V
6.60222	3	.0857	.40129

Table G.6

MTI Users' Use of Customized General Education IBT as a Function of Training Source

Count / Row % / Column % / Total %	Local and Other	Local Only	Row Total
No Use	26 83.9 86.7 63.4	5 16.1 45.5 12.2	31 75.6
Low Use	2 28.6 6.7 4.9	5 71.4 45.5 12.2	7 17.1
Moderate Use		1 100.0 9.1 2.4	1 2.4
High Use	2 100.0 6.7 4.9		2 4.9
Column Total	30 73.2	11 26.8	41 100.0

Chi Square	DF	Significance	Cramer's V
12.36126	3	.0062	.54908

Table G.7

Use of Customized Job Specific IBT
as a Function of Training Source

Count Row % Column % Total %	Local and Other	Local Only	Row Total
No Use	24 75.0 58.5 42.1	8 25.0 50.0 14.0	32 56.1
Low Use	10 76.9 24.4 17.5	3 23.1 18.8 5.3	13 22.8
Moderate Use	7 77.8 17.1 12.3	2 22.2 12.5 3.5	9 15.8
High Use		3 100.0 18.8 5.3	3 5.3
Column Total	41 71.9	16 28.1	57 100.0

Chi Square	DF	Significance	Cramer's V
8.14986	3	.0430	.37813

Table G.8

Use of Standardized Job Specific IBT
as a Function of Firm Location

Count Row % Column % Total %	Greater Minnesota	Metro Area	Row Total
No Use	21 95.5 44.7 37.5	1 4.5 11.1 1.8	22 39.3
Low Use	15 88.2 31.9 26.8	2 11.8 22.2 3.6	17 30.4
Moderate Use	6 66.7 12.8 10.7	3 33.3 33.3 5.4	9 16.1
High Use	5 62.5 10.6 8.9	3 37.5 33.3 5.4	8 14.3
Column Total	47 83.9	9 16.1	56 100.0

Chi Square	DF	Significance	Cramer's V
7.11212	3	.0684	.35637

Table G.9

MTI Users' Use of Personalized Job Specific IBT as a Function of Firm Location

Count Row % Column % Total %	Greater Minnesota	Metro Area	Row Total
No Use	29 100.0 74.4 70.7		29 70.7
Low Use	6 85.7 15.4 14.6	1 14.3 50.0 2.4	7 17.1
Moderate Use	4 80.0 10.3 9.8	1 20.0 50.0 2.4	5 12.2
Column Total	39 95.1	2 4.9	41 100.0

Chi Square	DF	Significance	Cramer's V
5.28645	2	.0711	.35908

Table G.10

MTI Users' Use of Customized Job Specific IBT as a Function of Firm Location

Count Row % Column % Total %	Greater Minnesota	Metro Area	Row Total
No Use	22 100.0 56.4 53.7		22 53.7
Low Use	8 100.0 20.5 19.5		8 19.5
Moderate Use	4 66.7 10.3 9.8	2 33.3 100.0 4.9	6 14.6
High Use	5 100.0 12.8 12.2		5 12.2
Column Total	39 95.1	2 4.9	41 100.0

Chi Square	DF	Significance	Cramer's V
12.26496	3	.0065	.54694

Table G.11

Use of Personalized Job Specific IBT
as a Function of Training Structure

Count Row % Column % Total %	Formal Training Structure	Non-Formal Training Structure	Row Total
No Use	10 30.3 100.0 17.9	23 69.7 50.0 41.1	33 58.9
Low Use		14 100.0 30.4 25.0	14 25.0
Moderate Use		7 100.0 15.2 12.5	7 12.5
High Use		2 100.0 4.3 3.6	2 3.6
Column Total	10 17.9	46 82.1	56 100.0

Chi Square	DF	Significance	Cramer's V
8.48485	3	.0370	.38925

Table G.12

MTI Users' Use of Customized Job Specific IBT as a Function of Training Structure

Count Row % Column % Total %	Formal Training Structure	Non-Formal Training Structure	Row Total
No Use	3 13.6 42.9 7.5	19 86.4 57.6 47.5	22 55.0
Low Use	1 12.5 14.3 2.5	7 87.5 21.2 17.5	8 20.0
Moderate Use		5 100.0 15.2 12.5	5 12.5
High Use	3 60.0 42.9 7.5	2 40.0 6.1 5.0	5 12.5
Column Total	7 17.5	33 82.5	40 100.0

Chi Square	DF	Significance	Cramer's V
7.68201	3	.0531	.43824

Table G.13

Use of Standardized General Education IBT
as a Function of Firm Type

Count Row % Column % Total %	Service	Manufacturing	Row Total
No Use	18 51.4 78.3 31.6	17 48.6 50.0 29.8	35 61.4
Low Use	3 20.0 13.0 5.3	12 80.0 35.3 21.1	15 26.3
Moderate Use	2 66.7 8.7 3.5	1 33.3 2.9 1.8	3 5.3
High Use		4 100.0 11.8 7.0	4 7.0
Column Total	23 40.4	34 59.6	57 100.0

Chi Square	DF	Significance	Cramer's V
7.93460	3	.0474	.37310

Table G.14

MTI Users' Use of Standardized General Education IBT as a Function of Firm Type

Count / Row % / Column % / Total %	Service	Manufacturing	Row Total
No Use	15 53.6 88.2 36.6	13 46.4 54.2 31.7	28 68.3
Low Use	1 11.1 5.9 2.4	8 88.9 33.3 19.5	9 22.0
Moderate Use	1 100.0 5.9 2.4		1 2.4
High Use		3 100.0 12.5 7.3	3 7.3
Column Total	17 41.5	24 58.5	41 100.0

Chi Square	DF	Significance	Cramer's V
8.64415	3	.0344	.45917